Self-Paced Familiarization Guide

Spring '99

HP Part Number 5967-9746
Printed in USA January, 1999
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Printing History

New editions of this manual will incorporate all material updated since the previous edition. Update packages may be issued between editions and contain replacement or additional pages to be merged into the manual by the user. Note that pages which are rearranged due to changes on a previous page are not considered revised.

The manual's printing date and part number indicate its current edition. The printing date changes when a new edition is printed. The manual part number may change when extensive technical changes are incorporated.

First Edition	May, 1996
Second Edition	August, 1996
Third Edition	February, 1998
Fourth Edition	July, 1997
Fifth Edition	August, 1997
Sixth Edition	February, 1998
Seventh Edition	July, 1998
Eighth Edition	January, 1999

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Self-Paced Familiarization Guide

This guide is for experienced HP Response Center personnel, CEs, and reseller technicians. It is strongly recommended that the user of this document have at least six months experience servicing Hewlett-Packard Vectra or Pavilion PCs or equivalent systems.

This is a self-paced training guide designed to train you to install, configure, and repair the HP Pavilion PC. You can follow it without having any equipment available.

Chapter 1	describes the product features
Chapter 2	describes the package, including installing and removing accessories. It also includes information on how to configure the PC using the Setup program
Chapter 3	takes a closer look inside the HP Pavilion computers at the various major assemblies.

Materials needed to complete this guide

- HP Pavilion Technical Service Handbook, Spring '99 Edition (required)
- HP Pavilion Personal Computer Self-Paced Interactive Service Training CD-ROMs, Spring '99 Edition (required)
- HP Pavilion PC (strongly suggested, but not required)

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HP Pavilion Familiarization Guide, Spring 99

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Introduction

Purpose

This guide is designed to familiarize service professionals about supporting the following HP Pavilion PCs:

- HP Pavilion 4402 (Asia Pacific)
- HP Pavilion 4405 (Europe)
- HP Pavilion 4407 (Asia Pacific)
- HP Pavilion 4409 (Asia Pacific)
- HP Pavilion 4431 (Mexico)
- HP Pavilion 4440 (North America)
- HP Pavilion 4450 (North America)
- HP Pavilion 4456 (North America)
- HP Pavilion 6356 (Special)
- HP Pavilion 6403 (Asia Pacific)
- HP Pavilion 6405 (Asia Pacific)
- HP Pavilion 6407 (Asia Pacific)
- HP Pavilion 6409 (Asia Pacific)
- HP Pavilion 6460 (North America)
- HP Pavilion 6470Z (North America)
- HP Pavilion 8480Z (North America)
- HP Pavilion 4404 (Hong Kong)
- HP Pavilion 4406 (Asia Pacific)
- HP Pavilion 4408 (Asia Pacific)
- HP Pavilion 4410 (U.K.)
- HP Pavilion 4440 (U.K.)
- HP Pavilion 4443 (Walmart Special)
- HP Pavilion 4451 (Mexico)
- HP Pavilion 6353 (Walmart Special)
- HP Pavilion 6357 (Special)
- HP Pavilion 6404 (Asia Pacific)
- HP Pavilion 6405 (Europe)
- HP Pavilion 6408 (Asia Pacific)
- HP Pavilion 6418 (Asia Pacific)
- HP Pavilion 6466 (North America)
- HP Pavilion 8418 (Asia Pacific)

The user of this guide is systematically led through the guide in order to gain an understanding of the HP Pavilion computers' normal operation. After understanding the normal operation of the computers, the student will be able to diagnose and repair a malfunctioning product.

Course Prerequisite

The student should have completed A+ certification requirements.

Familiarization Guide Objectives

When having completed this course, the student will be able to:

- Install and configure any of the HP Pavilion PCs covered in this guide
- Remove and replace the HP Pavilion PC devices and accessories (i.e., disk drives, motherboard, power supply, etc.)
- Troubleshoot and repair the HP Pavilion PC

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Materials needed to complete this guide

- HP Pavilion Technical Service Handbook (required)
- HP Pavilion Personal Computer Self-Paced Interactive Service Training CD-ROM (required)
- HP Pavilion PC (suggested, but not required)

Performance Objective

A satisfactory understanding of the material in this course will be demonstrated by the student correctly answering 92% or more of the questions on the end of course quiz.

Conventions

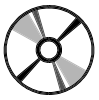
The following conventions are used in this manual:

A, E, S, etc. Represent the actual keys that you have to press on the keyboard.

NOTE
Gives bits and pieces of additional information related to the current topic.

WARNING
Alerts you to any damage that might result from doing or not doing specific actions.

CAUTION
Suggests precautionary measures to avoid potential hardware or software problems.



VIDEO
Tells you it is time to review a section on the CD-ROM, "HP Pavilion Personal Computer Self-Paced Interactive Service Training CD-ROM."

TIP
Tells how to accomplish a procedure with minimum steps through little shortcuts.

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ESD Precautions

Electrostatic discharge (ESD) can damage your processor, disk drives, expansion boards, and other components. Always observe the following precautions before you install a system component.

1. Do not remove a component from its protective packaging until you are ready to install it.

2. Wear a wrist grounding strap and attach it to a metal part of the system unit before handling components. If a wrist strap is not available, maintain contact with the system unit throughout any procedure requiring ESD protection.

CAUTION:
Integrated circuits are extremely susceptible to electrostatic discharge. Do not handle ICs unless you are a qualified service technician, using tools and techniques that conform to accepted industry practices.

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Chapter 1
Product Overview and Features

Part 1 - HP Pavilion 4400 Series PCs

Introduction

In this section you will start to work with the HP Pavilion 4400 Series PCs. This section will provide you with a basic understanding of the HP Pavilion family of slimline personal computers.

After reading this chapter, you will be able to:

- Identify the different computers in the HP Pavilion 4400 Series PCs
- Identify the major components and features in the HP Pavilion 4400 Series PCs

Product Introduction

There are 3 models in the HP Pavilion 4400 Series covered in this guide.

HP Pavilion Series Product Features

Model	Country of Usage	Processor and Speed	SDRAM RAM	Hard Disk Drive	CD-ROM Speed	Fax/ Modem (in BPS)	Video Memory
4402	Asia Pacific	AMD K6-1 300 MHz	32 MB (66 MHz)	2.1 GB	32X Max	56K	SIS 5598 UMA 2D 4MB
4404	Asia Pacific	AMD K6-1 333 MHz	48 MB (66 MHz)	3.2 GB	32X Max	56K	SIS 5598 UMA 2D 4MB
4405	Europe	AMD K6-1 333 MHz	U.K 32 MB (66 MHz) Fr 48 MB (66 MHz)	3.2 GB	32X Max	56K	SIS 5598 UMA 2D 4MB
4406	Asia Pacific	Intel Celeron 333 MHz 128k L2 Cache	32 MB (66 MHz)	3.2 GB	32X Max	56K	Rage IIC/4 MB SDRAM
4407	Asia Pacific	Intel Celeron 366 MHz 128k L2 Cache	48 MB (66 MHz)	4.3 GB	32X Max	56K	Rage IIC/4 MB SDRAM
4408	Asia Pacific	AMD K6-1 366 MHz	48 MB (66 MHz)	4.3 GB	32X Max	56K	SIS 5598 UMA 2D 2MB
4409	Asia Pacific	Intel Celeron 366 MHz 128k L2 Cache	64 MB (66 MHz)	4.3 GB	32X Max	56K	SIS SW 3D 2MB SDRAM
4410	U.K.	AMD K6-1 333 MHz	64 MB (66 MHz)	4.3 GB	32X Max	56K	SIS 5598 UMA 2D 4MB

Table 1-1: HP Pavilion 4400 Series Feature Comparisons (part 1)(continued on next page)

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Model	Country of Usage	Processor and Speed	SDRAM RAM	Hard Disk Drive	CD-ROM Speed	Fax/ Modem (in BPS)	Video Memory
4431	Mexico	AMD K6-1 333 MHz	48 MB (66 MHz)	3.2 GB	32X Max	56K	SIS 5598 UMA 2D 4MB
4440	U.K.	AMD K6-1 366 MHz	64 MB (66 MHz)	6.4 GB	32X Max	56K	SIS 5598 UMA 2D 4MB
4440	North America	AMD K6-1 333 MHz	64 MB (66 MHz)	4.3 GB	32X Max	56K	SIS 5598 UMA 2D 4MB
4443	Walmart	AMD K6-1 333 MHz	64 MB (66 MHz)	3.2 GB	32X Max	56K	SIS 5598 UMA 2D 4MB
4450	North America	Intel Celeron 366 MHz 128k L2 Cache	64 MB (66 MHz)	6.4 GB	32X Max	56K	Rage IIC/4 MB SDRAM
4451	Mexico	Intel Celeron 366 MHz 128k L2 Cache	64 MB (66 MHz)	6.4 GB	32X Max	56K	Rage IIC/4 MB SDRAM
4456	North America	Intel Celeron 366 MHz 128k L2 Cache	48 MB (66 MHz)	5.1GB	32X Max	56K	Rage IIC/4 MB SDRAM

Table 1-1: HP Pavilion 4400 Series Feature Comparisons (part 1)(continued)

Model	Serial Ports	USB Ports	Parallel Ports	Expansion Slots
4402	1	Yes	1	1 - ISA, 1 - PCI, 1 shared ISA/PCI
4404	1	Yes	1	1 - ISA, 1 - PCI, 1 shared ISA/PCI
4405	1	Yes	1	1 - ISA, 1 - PCI, 1 shared ISA/PCI
4406	1	Yes	1	1 - ISA, 2 - PCI
4407	1	Yes	1	1 - ISA, 2 - PCI
4408	1	Yes	1	1 - ISA, 1 - PCI, 1 shared ISA/PCI
4409	1	Yes	1	1 - ISA, 2 - PCI
4410	1	Yes	1	1 - ISA, 1 - PCI, 1 shared ISA/PCI
4431	1	Yes	1	1 - ISA, 1 - PCI, 1 shared ISA/PCI
4440	1	Yes	1	1 - ISA, 1 - PCI, 1 shared ISA/PCI
4443	1	Yes	1	1 - ISA, 1 - PCI, 1 shared ISA/PCI
4450	1	Yes	1	1 - ISA, 2 - PCI
4451	1	Yes	1	1 - ISA, 2 - PCI
4456	1	Yes	1	1 - ISA, 2 - PCI

Table 1-2: HP Pavilion 4400 Series Feature Comparisons (part 2)

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Pre-Installed Software Bundles

NOTE
The following list of software is subject to change.

Pre-Installed Software

The following software is pre-installed on the HP Pavilion 4400 Series PCs.

Operating System:

- Windows '98

Productivity and Finance:

- Microsoft Works
- Smith/Micro QuickLink III FAX software
- Microsoft Money '99
- Quicken® '99 by Intuit®
- HP Financial Calculator (except on Mexico systems)

Fun with Photos:

- EasyPhoto™ by Storm Technology (only on Asia Pacific systems)

Education and Reference:

- Microsoft Encarta '99 Encyclopedia (only on North America and Asia Pacific systems)
- Microsoft Encarta World Atlas '99 (only on Mexico and European systems)
- Hablemos Ingles by The Learning Company (only on Mexico systems)
- Mission: T.H.I.N.K. by The Learning Company (only on Asia Pacific systems)
- Reader Rabbit's 1st Grade by The Learning Company (only on Asia Pacific systems)
- Me and My World by The Learning Company (only on select Asia Pacific systems)
- Reader Rabbit Toddler by The Learning Company (only on select Asia Pacific systems)

Entertainment:

- HP Pavilion Media Rack by Willow Pond
- World Football '98 de Ubi Soft (only on Mexico systems)
- VCD Player by Mediamatics (only on Asia Pacific systems)

Internet and Online:

- HP At Home Owner's Website (only on North American systems)
- Customized Browser (only on North American systems
- HP Message Board
- Disney's Blast Online
- America Online® (only on North American and European systems)
- CompuServe WinCim® (only on North American, Mexico and European systems)

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- PRODIGY® Internet Service (only on North American systems)
- AT&T WorldNet Service™ (only on North American systems)
- NETCOMplete™ by NETCOM™ (only on North American systems)
- XTRA by Telecom Internet Services (only on select Asia Pacific systems)
- Bigpond (only on select Asia Pacific systems)
- Club Internet by Grolier Interactive (only on European systems)
- TimTel by GOTO Informatique (only on select European systems)
- UUNET's PIPEX Dial Service (only on select European systems)

Service and Support:

- HP Help
- SystemWizard by SystemSoft (only on North American systems)
- Hardware Diagnostics by AMI
- HP Pavilion Recovery Kit
- VirusScan™ by McAfee
- HP Pavilion Library (Online HTML documentation)

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Part 2 - HP Pavilion 6300 and 6400 Series PCs

Introduction

In this section you will start to work with the HP Pavilion 6300 and 6400 Series PCs. This section will provide you with a basic understanding of the HP Pavilion family of personal computers.

After reading this chapter, you will be able to:

- Identify the different computers in the HP Pavilion 6300 and 6400 Series PCs
- Identify the major components and features in these HP Pavilion PCs

Product Introduction

There are 20 models in the HP Pavilion 6300 and 6400 Series covered in this guide.

HP Pavilion Series Product Features

Model	Where Used	Processor and Speed	SDRAM RAM	Hard Disk Drive	CD-ROM Speed	4-X DVD ROM	Fax/ Modem	Video Memory
6353	Walmart	Pentium II 350 MHz	64 MB (100 MHz)	6.4 GB	32X Max	-	56K	ATI RagePro AGP 2X 3D 8MB SDRAM
6356	Special	AMD K6-2 333 MHz	64 MB (66 MHz)	4.3 GB	24X Max	-	56K	SIS 5598 UMA 2D 4MB
6357	Special	AMD K6-2 333 MHz	64 MB (66 MHz)	6.4 GB	24X Max	-	56K	SIS 5598 UMA 2D 4MB
6403	Asia Pacific	Pentium II 350 MHz	48 MB (100 MHz)	4.3 GB	32X Max	-	56K	ATI RagePro AGP 8MB SDRAM
6404	Asia Pacific	Pentium II 350 MHz	48 MB (100 MHz)	6.4 GB	32X Max	-	56K	ATI RagePro AGP 8MB SDRAM
6405	Asia Pacific	Pentium II 350 MHz	64 MB (100 MHz)	6.4 GB	32X Max	-	56K	ATI RagePro AGP 8MB SDRAM
6405	Europe	Intel Celeron 400 MHz 128k L2 Cache	64 MB (66 MHz)	6.4 GB		yes	56K	ATI RagePro AGP 8MB SDRAM
6407	Asia Pacific	Intel Celeron 400 MHz 128k L2 Cache	64 MB (66 MHz)	4.3 GB	32X Max		56K	ATI RagePro AGP 8MB SDRAM
6408	Asia Pacific	Intel Celeron 400 MHz 128k L2 Cache	64 MB (66 MHz)	6.4 GB	32X Max		56K	ATI RagePro AGP 8MB SDRAM

Table 1-3: HP Pavilion 6300 and 6400 Series Feature Comparisons (part 1)(continued on next page)

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Model	Country of Usage	Processor and Speed	SDRAM RAM	Hard Disk Drive	CD-ROM Speed	2-X DVD ROM	Fax/ Modem	Video Memory
6409	Asia Pacific	Pentium II 400 MHz	64 MB (100 MHz)	6.4 GB	32X Max	-	56K	ATI RagePro AGP 8MB SDRAM
6418	Asia Pacific	Pentium II 400 MHz	64 MB (100 MHz)	9.6 GB		yes	56K	ATI RagePro AGP 8MB SDRAM
6460	North America	Intel Celeron 400 MHz 128k L2 Cache	96 MB (66 MHz)	9.6 GB	32X Max		56K	ATI RagePro AGP 8MB SDRAM
6466	North America	Intel Celeron 400 MHz 128k L2 Cache	96 MB (66 MHz)	12.7GB	32X Max		56K	ATI RagePro AGP 8MB SDRAM
6470Z	North America	Pentium II 400 MHz	96 MB (100 MHz)	12.7 GB	32X Max		56K	ATI RagePro AGP 8MB SDRAM

Table 1-3: HP Pavilion 6300 and 6400 Series Feature Comparisons (part 1)(continued)

Model	Serial Ports	USB Ports	Parallel Ports	Expansion Slots
6353	1	Yes	1	1 – ISA, 3 – PCI, 1 shared ISA/PCI
6356	1	Yes	1	2 – ISA, 2 – PCI, 1 shared ISA/PCI
6357	1	Yes	1	2 – ISA, 2 – PCI, 1 shared ISA/PCI
6403	1	Yes	1	1 – ISA, 4 – PCI
6404	1	Yes	1	1 – ISA, 4 – PCI
6405	1	Yes	1	1 – ISA, 4 – PCI
6405	1	Yes	1	1 – ISA, 4 – PCI
6407	1	Yes	1	1 – ISA, 4 – PCI
6408	1	Yes	1	1 – ISA, 4 – PCI
6409	1	Yes	1	1 – ISA, 4 – PCI
6418	1	Yes	1	1 – ISA, 4 – PCI
6460	1	Yes	1	1 – ISA, 4 – PCI
6466	1	Yes	1	1 – ISA, 4 – PCI
6470Z	1	Yes	1	1 – ISA, 4 – PCI

Table 1-4: HP Pavilion 6300 and 6400 Series Feature Comparisons (part 2)

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Pre-Installed Software Bundles

NOTE
The following list of software is subject to change.

Pre-Installed Software

The following software is pre-installed on the HP Pavilion 6300 and 6400 Series PCs.

Operating System:

- Windows '98

Productivity and Finance:

- Microsoft Works
- Smith/Micro QuickLink III FAX software
- Microsoft Money '99
- Quicken® '99 by Intuit®
- HP Financial Calculator (except on Mexico systems)

Fun with Photos:

- EasyPhoto™ by Storm Technology (only on Asia Pacific systems)

Education and Reference:

- Microsoft Encarta '99 Encyclopedia (only on North America and Asia Pacific systems)
- Microsoft Encarta World Atlas '99 (only on Mexico and European systems)
- Hablemos Ingles by The Learning Company (only on Mexico systems)
- Mission: T.H.I.N.K. by The Learning Company (only on Asia Pacific systems)
- Reader Rabbit's 1st Grade by The Learning Company (only on Asia Pacific systems)
- Me and My World by The Learning Company (only on select Asia Pacific systems)
- Reader Rabbit Toddler by The Learning Company (only on select Asia Pacific systems)

Entertainment:

- HP Pavilion Media Rack by Willow Pond
- World Football '98 de Ubi Soft (only on Mexico systems)
- VCD Player by Mediamatics (only on Asia Pacific systems)

Internet and Online:

- HP At Home Owner's Website (only on North American systems)
- Customized Browser (only on North American systems
- HP Message Board
- Disney's Blast Online

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- America Online® (only on North American and European systems)
- CompuServe WinCim® (only on North American, Mexico and European systems)
- PRODIGY® Internet Service (only on North American systems)
- AT&T WorldNet Service™ (only on North American systems)
- NETCOMplete™ by NETCOM™ (only on North American systems)
- XTRA by Telecom Internet Services (only on select Asia Pacific systems)
- Bigpond (only on select Asia Pacific systems)
- Club Internet by Grolier Interactive (only on European systems)
- TimTel by GOTO Informatique (only on select European systems)
- UUNET's PIPEX Dial Service (only on select European systems)

Service and Support:

- HP Help
- SystemWizard by SystemSoft (only on North American systems)
- Hardware Diagnostics by AMI
- HP Pavilion Recovery Kit
- VirusScan™ by McAfee
- HP Pavilion Library (Online HTML documentation)

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Part 3 - HP Pavilion 8400 Series PCs

Introduction

In this section you will start to work with the HP Pavilion 8400 Series PCs. This section will provide you with a basic understanding of the HP Pavilion family of personal computers.

After reading this chapter, you will be able to:

- Identify the different computers in the HP Pavilion 8400 Series PCs
- Identify the major components and features in these HP Pavilion PCs

Product Introduction

There are 14 models in the HP Pavilion 8400 Series covered in this guide.

HP Pavilion Series Product Features

Model	Country of Usage	Processor and Speed	SDRAM RAM	Hard Disk Drive	CD-ROM Speed	4-X DVD ROM	Fax/ Modem	Video Memory
8418	Asia Pacific	Pentium II 450 MHz	128 MB (100 MHz)	9.6 GB	-	Yes	56K	ATI RagePro AGP 8MB SDRAM
8480Z	North America	Pentium II 450 MHz	96 MB (100 MHz)	12.7 GB	32X Max	-	56K	ATI RagePro AGP 8MB SDRAM

Table 1-5: HP Pavilion 8400 Series Feature Comparisons (part 1)

Model	Serial Ports	USB Ports	Parallel Ports	Expansion Slots
8290	1	Yes	1	1 – ISA, 4 – PCI
8303	1	Yes	1	1 – ISA, 4 – PCI

Table 1-6: HP Pavilion 8200 and 8300 Series Feature Comparisons (part 2)

Pre-Installed Software Bundles

NOTE
The following list of software is subject to change.

Pre-Installed Software

The following software is pre-installed on the HP Pavilion 8400 Series PCs.

Operating System:

- Windows '98

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Productivity and Finance:

- Microsoft Works
- Smith/Micro QuickLink III FAX software
- Microsoft Money '99
- Quicken® '99 by Intuit®
- HP Financial Calculator (except on Mexico systems)

Fun with Photos:

- EasyPhoto™ by Storm Technology (only on Asia Pacific systems)

Education and Reference:

- Microsoft Encarta '99 Encyclopedia (only on North America and Asia Pacific systems)
- Microsoft Encarta World Atlas '99 (only on Mexico and European systems)
- Hablemos Ingles by The Learning Company (only on Mexico systems)
- Mission: T.H.I.N.K. by The Learning Company (only on Asia Pacific systems)
- Reader Rabbit's 1st Grade by The Learning Company (only on Asia Pacific systems)
- Me and My World by The Learning Company (only on select Asia Pacific systems)
- Reader Rabbit Toddler by The Learning Company (only on select Asia Pacific systems)

Entertainment:

- HP Pavilion Media Rack by Willow Pond
- World Football '98 de Ubi Soft (only on Mexico systems)
- VCD Player by Mediamatics (only on Asia Pacific systems)

Internet and Online:

- HP At Home Owner's Website (only on North American systems)
- Customized Browser (only on North American systems
- HP Message Board
- Disney's Blast Online
- America Online® (only on North American and European systems)
- CompuServe WinCim® (only on North American, Mexico and European systems)
- PRODIGY® Internet Service (only on North American systems)
- AT&T WorldNet Service™ (only on North American systems)
- NETCOMplete™ by NETCOM™ (only on North American systems)
- XTRA by Telecom Internet Services (only on select Asia Pacific systems)
- Bigpond (only on select Asia Pacific systems)
- Club Internet by Grolier Interactive (only on European systems)
- TimTel by GOTO Informatique (only on select European systems)
- UUNET's PIPEX Dial Service (only on select European systems)

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Service and Support:

- HP Help
- SystemWizard by SystemSoft (only on North American systems)
- Hardware Diagnostics by AMI
- HP Pavilion Recovery Kit
- VirusScan™ by McAfee
- HP Pavilion Library (Online HTML documentation)

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Chapter 2
Installation, Setup, and Basic Operation

Part 1 - HP Pavilion 4400 Series PCs

The HP Pavilion 4400 Series PCs are shipped fully configured with all standard memory, I/O, and software installed. The purpose of this part of the lesson is to provide you with the knowledge and skills to:

- Understand the BIOS Setup Configuration program for the HP Pavilion 4400 Series PCs.

In this chapter, you are required to read the information in this book and reference both the HP Pavilion Technical Handbook and the HP Pavilion Self-Paced Interactive Service Training CD-ROMs. In this book, you will learn the specific tasks in order to be able to perform the skills demonstrated in the CD-ROM.

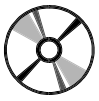
Selecting a Site

The HP Pavilion 4400 Series PC is designed to operate in a typical home, home office, or commercial environment. Choose a site that is:

- Located near a grounded, three pronged power outlet. For the United States and Canada, this means a NEMA 5-15R outlet for 115V ac. For other regions, this means a grounded, three pronged power outlet approved by the electrical code of the region.
- Clean and relatively dust-free.
- Well ventilated and away from sources of heat (heater vent, fireplace, etc.) including direct sunlight.
- Isolated from strong electromagnetic fields produced by electrical devices (such as air conditioners, large fans, large electric motors, radio and TV transmitters, and high frequency security devices).

Setting up the HP Pavilion 4400 Series PC

As you learned earlier, the HP Pavilion PC comes fully configured. The following figures show how to connect the various accessories to the HP Pavilion PC.



VIDEO
Please review the HP Pavilion 4400 Series PCs front panel and back panel material on the HP Pavilion Interactive Service Training CD-ROM. Then proceed in this guide. You may want to review various parts of the Service Training CD-ROM as you move through the activities within this chapter.

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Hardware Setup of the HP Pavilion 4400 Series PC

Follow the procedures below to setup the HP Pavilion Series PC.

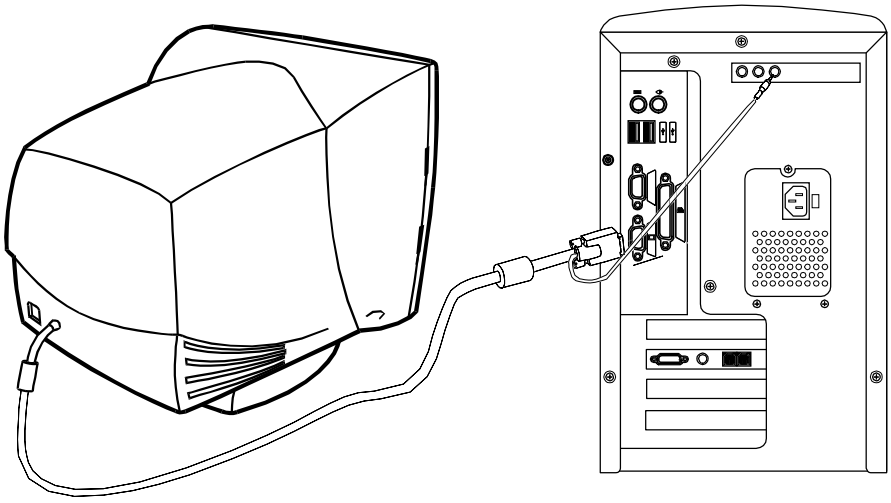

Figure 2-1: Display Connection

1. Connect the display as shown in Figure 2-1. Please note that some monitors will not have a microphone connector.

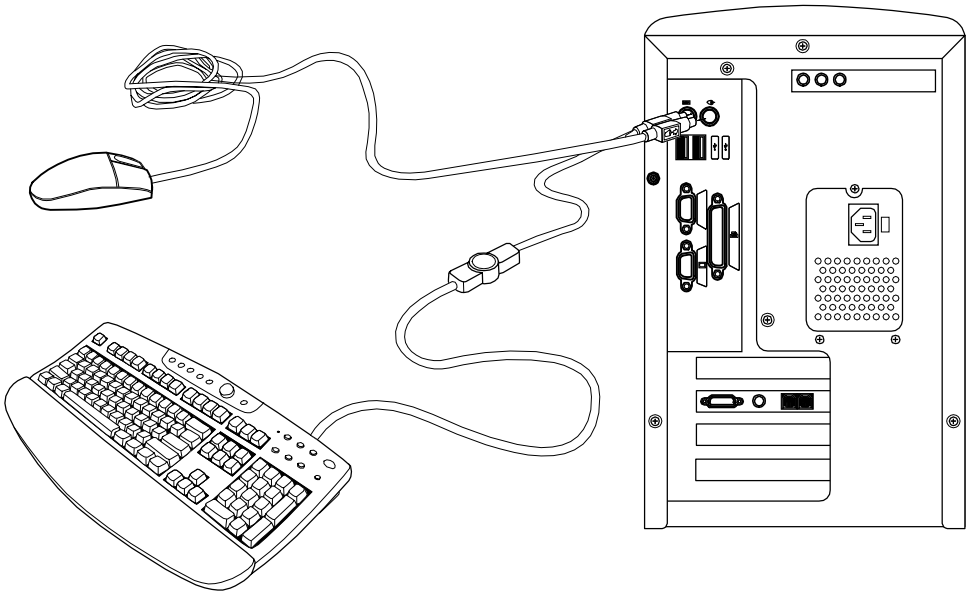

Figure 2-2: Keyboard and Mouse Connections

2. Connect the keyboard and mouse

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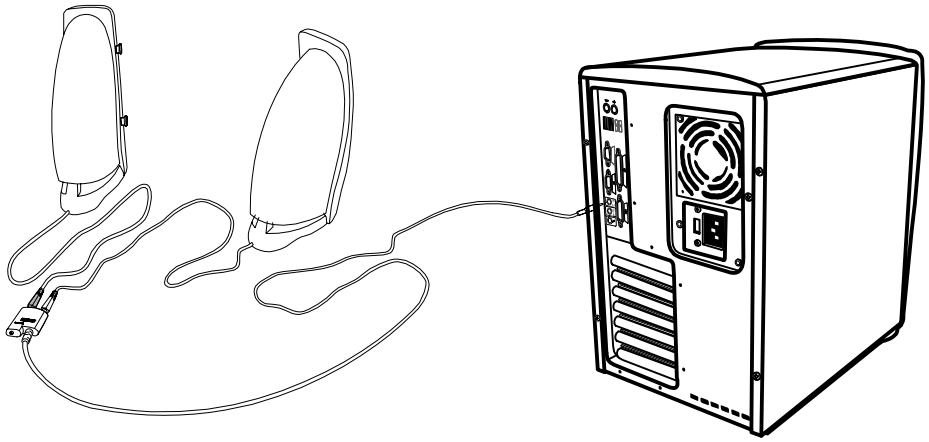

Figure 2-3: Audio Connections

3. Connect the speaker connectors to the Y-cable and then to the computer.

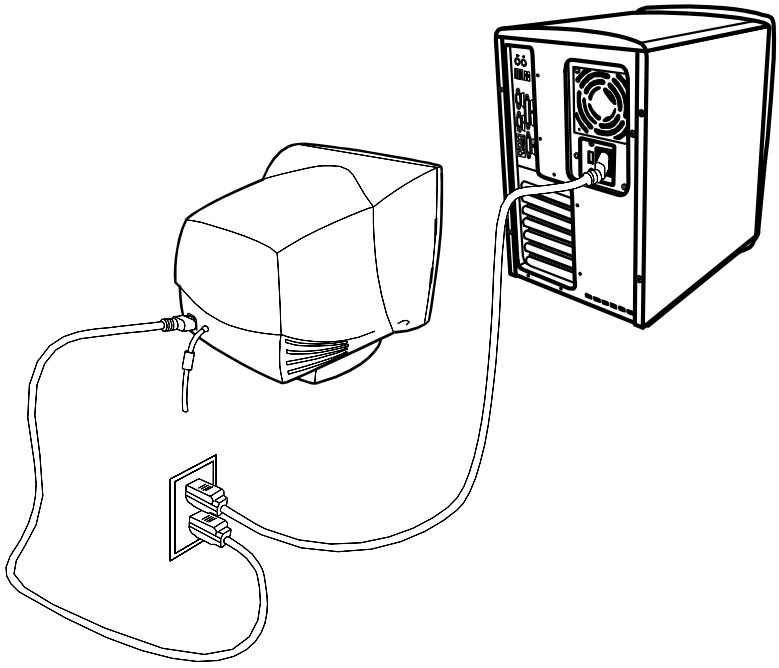

Figure 2-4: Connect Power Cords

4. Connect the power cords for both the computer and the monitor.

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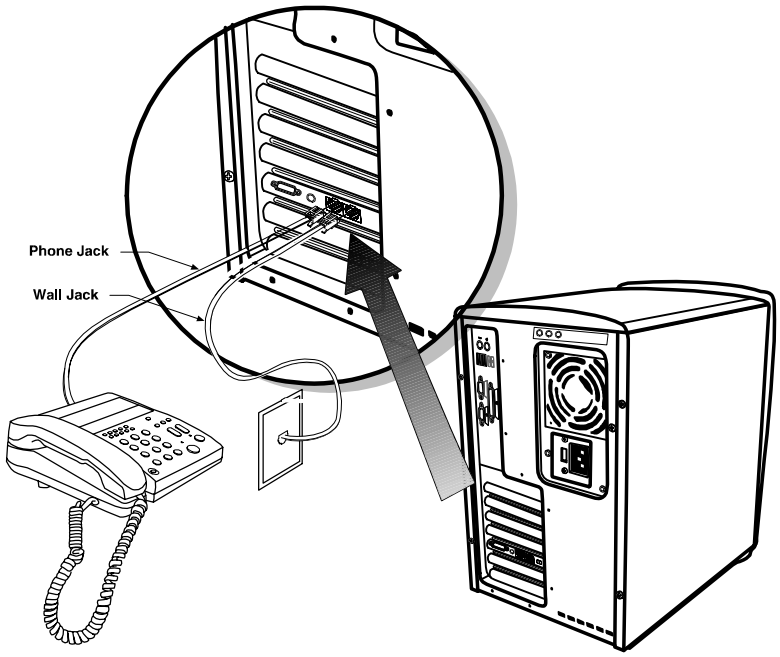

Figure 2-5: Phone Line Connection

5. Connect the telephone line cable between the telephone jack on the wall and the Phone Line Connector.

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BIOS Setup for the HP Pavilion 4400 Series PCs

Introduction

This part of the chapter shows and tells you the basics of how to use the Setup program that is built into the system BIOS (a more detailed discussion of the HP Pavilion 4400 Series PC Setup program can be found in Section 14 of the Spring 1999 Technical Service Handbook).

The Setup program makes it possible to change and store system configuration information such as the types of peripherals that are installed, the boot-up sequence for the system, and configuring memory. The Setup information is stored in CMOS random access memory (RAM) and is backed up by a battery on the motherboard when power is off.

CAUTION
The information stored by the Setup program is essential. It should not be changed arbitrarily. To make sure you have a reference to the Setup values for your system, write down the current settings and keep this record up-to-date.

About the Setup Menu Screen

The Setup program initially displays the Main menu screen. In each screen there are options for modifying the system configuration. Select a menu screen by pressing the left or right arrow keys. Use the up or down arrow keys to select items on the screen. Use the Enter key to select an item for modification. For certain items, pressing Enter will bring up a submenu. After you have selected a menu item, use the arrow keys to modify the settings. Press the Esc key to move back a screen.

Setup Menus	Description
Main	Use this menu for basic system configuration
Advanced	Use this menu to set the Advanced Features available on the system's chipset.
Power	Use this menu to configure Power Management features.
Boot	Use this menu to determine the system's startup sequence.
Exit	Use this menu to save or discard changes made in the current session, or to load the system defaults

Table 2-1: Understanding the BIOS Setup Menu Screens for the HP Pavilion

There may be some differences in the fields depending on the specific HP Pavilion PC you are working with. Refer to Section 14 of the Spring 1999 Technical Service Handbook for system specific BIOS settings. The settings shown here are for the HP Pavilion Model 4440 for the U.S. and Canada.

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Main Menu	Default Settings	Description
System Time	HH:MM:SS	Set the system time
System Date	MM/DD/YYYY	Set the system date
Legacy Diskette A	1.44 Mb 3½"	This field is used to configure the format for Floppy Disk Drive A.
Primary Master	ST34323A (this is a submenu)	This is a submenu that is used to configure the Primary Master device. This is the Disk Drive C: and is automatically configured by the computer.
Primary Slave	None (this is a submenu)	This is a submenu that is used to configure the Primary Slave device. It is automatically configured by the computer.
Secondary Master	CD-532-B (this is a submenu)	This is a submenu that is used to configure the Secondary Master device. This is the CD-ROM and is automatically configured by the computer.
Secondary Slave	None (this is a submenu)	This is a submenu that is used to configure the Secondary Slave device. It is automatically configured by the computer.
System Memory	640 KB †	Displays the amount of conventional memory detected during bootup.
Instsalled Memory	64 MB †	Displays the amount of extended memory detected during bootup.
Memory Bank 0	32 MB †	Displays the amount of extended memory detected during bootup.
Memory Bank 1	32 MB †	Displays the type of RAM that is DIMM Bank 0 during bootup.
Core Version	4.06 †	Displays the core BIOS version
BIOS Version	1.03 12/06/98 †	Displays the BIOS version.

Table 2-2: Understanding the BIOS Setup Main Menu
(† = system auto detects this field, not changeable)

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Primary Master Submenu	Default Settings
Type	Auto
Cylinders	8912 (determined by auto configure)
Heads	15 (determined by auto configure)
Sectors	63 (determined by auto configure)
Maximum Capacity	4312 MB (determined by auto configure)
Multi-Sector Transfers	16 Sectors
LBA Mode Control	Enabled (determined by auto configure)
32 Bit I/O	Enabled
Transfer Mode	Fast PIO 4 (determined by auto configure)
Ultra DMA Mode	Mode 2 (determined by auto configure)

Table 2-3: Primary Master Submenu Settings

Advanced Menu	Default Setting
CPU Type	AMD-K6-2 (set by the computer)
CPU Speed	333 MHz (set by the computer)
Cache RAM	512 KB (set by the computer)
Installed O/S	Win98.WinNT5.0
Reset Configuration Data	No
PCI Configuration	Press Enter
PS/2 Mouse	Auto Detect
I/O Device Configuration	Press Enter
Large Disk Access Mode	DOS
Local Bus IDE Adapter	Both
VGA Ram Size	4.0M

Table 2-4: Advanced Menu Default Settings

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PCI Configuration Submenu	Default Settings
PCI Device, Slot #1	Press Enter
PCI Device, Slot #2	Press Enter

Table 2-5: Main PCI Configuration Submenu Settings

PCI Device Slot Submenu	Default Settings
Option Rom Scan	Disabled
Enable Master	Disabled
Latency Timer	0040h

Table 2-6: PCI Device Slot Submenu Settings

Peripheral Configuration Submenu	Default Settings
Serial Port A	Enabled
Base I/O Address	3F8
Interrupt	IRQ4
Serial Port B	Disabled
Parallel port	Enabled
Mode	Bi-directional
Base I/O Address	378
Interrupt	IRQ7
Floppy Disk Controller	Enabled
Base I/O Address	Primary
Floppy Drive Swap	Disabled

Table 2-7: Peripheral Configuration Submenu Settings

Power Configuration Submenu	Default Settings
Power Savings	Customized
Auto Suspend Timeout	Off
Hard Disk Timeout	Disabled
Resume On Time	Off
Resume Time	[00:00:00]

Table 2-8: Power Configuration Submenu Settings

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Boot Configuration Submenu	Default Settings
Removable Devices	To change the start up order, highlight a device and use the + or - key on the numeric keypad to move it to the desired location.
ATAPI CD-ROM	
Hard Drive	
Network Boot	
Hard Drive	Press Enter (shows settings which are not changeable)
Removable Devices	Press Enter (shows settings which are not changeable)
Boot-time Diagnostic Screen	Disabled
QuickBoot Mode	Enabled

Table 2-9: Boot Configuration Menu Settings

Exit Menu	Selections
Exit Saving Changes	Press Enter
Exit Discarding Changes	Press Enter
Load Setup Defaults	Press Enter
Discard Changes	Press Enter
Save Changes	Press Enter

Table 2-10: Exit Menu

Refer to Section 14 of the Technical Service Handbook for a more detailed explanation of each part of the Setup program.

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Part 2 - HP Pavilion 6300 and 6400 Series PCs

The HP Pavilion 6300 and 6400 Series PCs are shipped fully configured with all standard memory, I/O, and software installed. The purpose of this part of the lesson is to provide you with the knowledge and skills to:

- Identify and understand the function of the controls, indicators and connectors for the HP Pavilion 6300 and 6400 Series PCs.
- Understand the BIOS Setup Configuration program for the HP Pavilion 6300 and 6400 Series PCs.

In this chapter, you are required to read the information in this book and reference both the HP Pavilion Technical Handbook and the HP Pavilion Self-Paced Interactive Service Training CD-ROMs. In this book, you will learn the specific tasks in order to be able to perform the skills demonstrated in the CD-ROM.

Performance Objective

In exercises, the student will correctly identify the specified connectors, controls, and indicators for all of the HP Pavilion 6300 and 6400 Series PCs.

Selecting a Site

The HP Pavilion 6300 and 6400 Series PC is designed to operate in a typical home, home office, or commercial environment. Choose a site that is:

- Located near a grounded, three pronged power outlet. For the United States and Canada, this means a NEMA 5-15R outlet for 115V ac. For other regions, this means a grounded, three pronged power outlet approved by the electrical code of the region.
- Clean and relatively dust-free.
- Well ventilated and away from sources of heat (heater vent, fireplace, etc.) including direct sunlight.
- Isolated from strong electromagnetic fields produced by electrical devices (such as air conditioners, large fans, large electric motors, radio and TV transmitters, and high frequency security devices).

Setting up the HP Pavilion 6300 and 6400 Series PC

As you learned earlier, the HP Pavilion PC comes fully configured. However, you do need to learn about the controls, indicators, and connectors.

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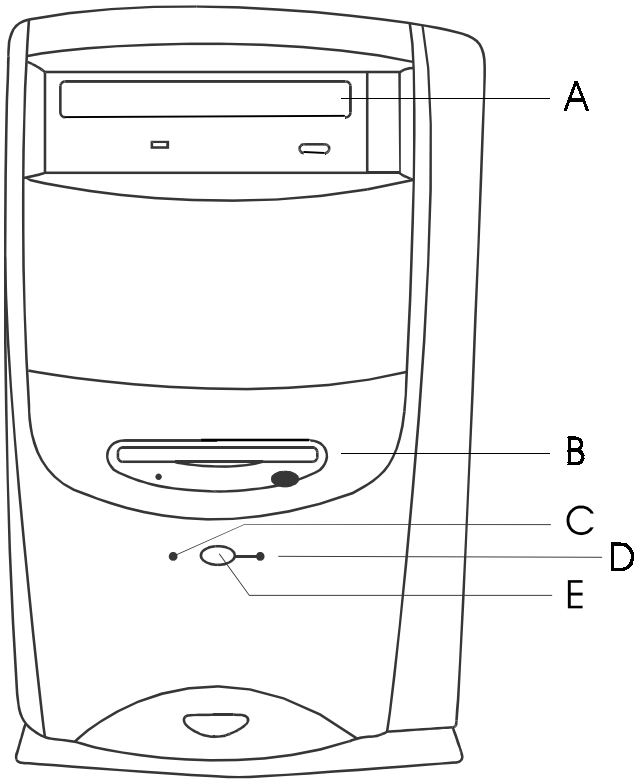
VIDEO
Please review the HP Pavilion 6300 and 6400 Series PCs front panel and back panel material on the HP Pavilion Interactive Service Training CD-ROM. Then proceed in this guide. You may want to review various parts of the Service Training CD-ROM as you move through the activities within this chapter.

Front Panel

The front panel for all of the HP Pavilion 6300 and 6400 Series PCs are the same.

Exercise 2-1: HP Pavilion 6300 and 6400 Series PC Front Panel

Complete this exercise after viewing the HP Pavilion 6300 and 6400 Series PCs front panel section of the Service Training CD-ROM. You may review that portion of the Service Training CD-ROM as often as necessary to complete this exercise.



_____ Hard Drive Activity Indicator

_____ 3½" 1.44 Mbyte Floppy disk drive

_____ Power ON/OFF Switch

_____ Power On Indicator

_____ CD-ROM Drive or DVD-ROM Drive

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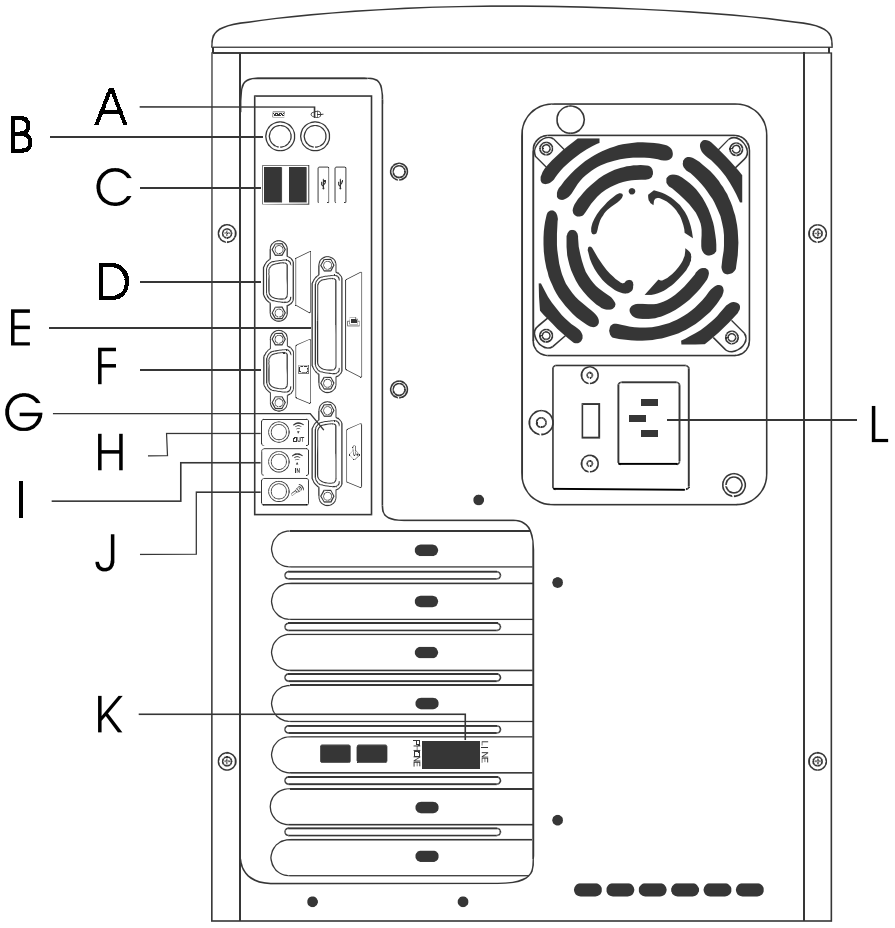
Back Panel

The there are slight variations to the back panel of the HP Pavilion 6300 and 6400 Series PCs, depending on the motherboard used. Please be sure to review the back panel portion of the HP Pavilion 6300 and 6400 Interactive Service Training CD-ROM.

Exercise 2-2: HP Pavilion 6300 and 6400 Series PC Back Panel

Complete this exercise after viewing the HP Pavilion 6300 and 6400 Series PCs front panel section of the Service Training CD-ROM. You may review that portion of the Service Training CD-ROM as often as necessary to complete this exercise.



_____ Microphone connector

_____ Monitor connector

_____ Joystick connector

_____ Parallel port connector

_____ Modem connection

_____ Keyboard connector

_____ Power connector

_____ Serial port connector

_____ Speaker/Line Out connector

_____ Mouse connector

_____ USB connectors

_____ Line IN connector

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Hardware Setup of the HP Pavilion 6300 Series PC

Follow the procedures below to setup the HP Pavilion Series PC.

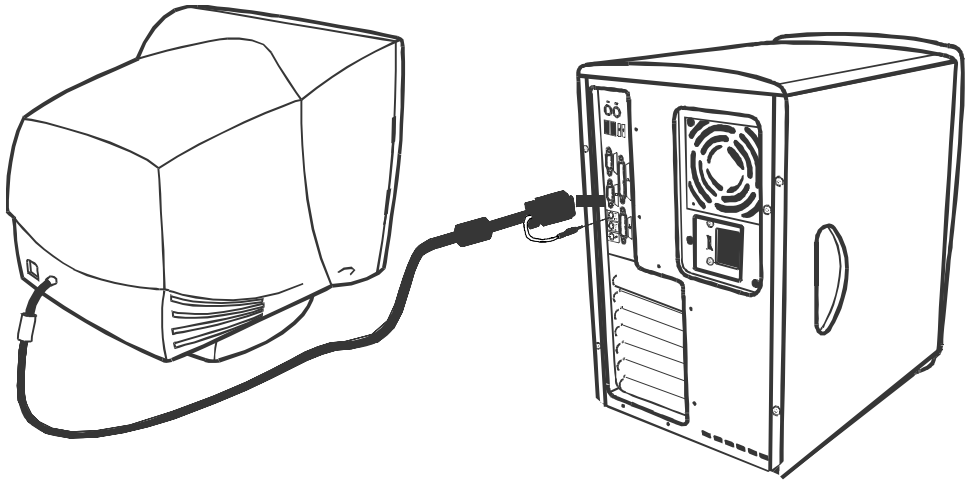

Figure 2-6: Connecting the Display

1. Connect the display and microphone connectors as shown. If you are not using an HP Multimedia Display, there may not be a microphone connector.

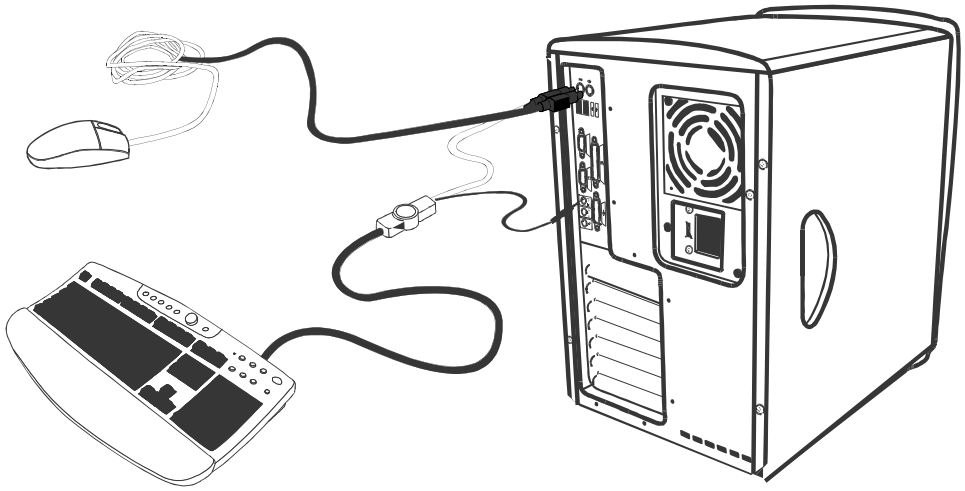

Figure 2-7: Keyboard and Mouse Connections

2. Connect the keyboard and mouse

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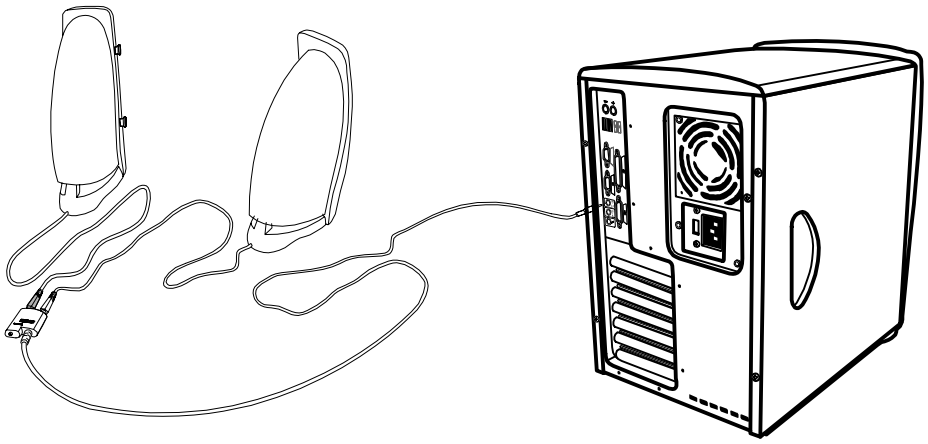

Figure 2-8: Audio Connections

3. There are 2 different methods of connecting the speakers, depending on the type of speakers you have. One method is shown in Figure 2-3 earlier in this section. Figure 2-9 above shows the other. For this method, connect the speaker "Y" cable between the computer and the speakers. Some speakers can be mounted on the sides of HP Multimedia Displays.

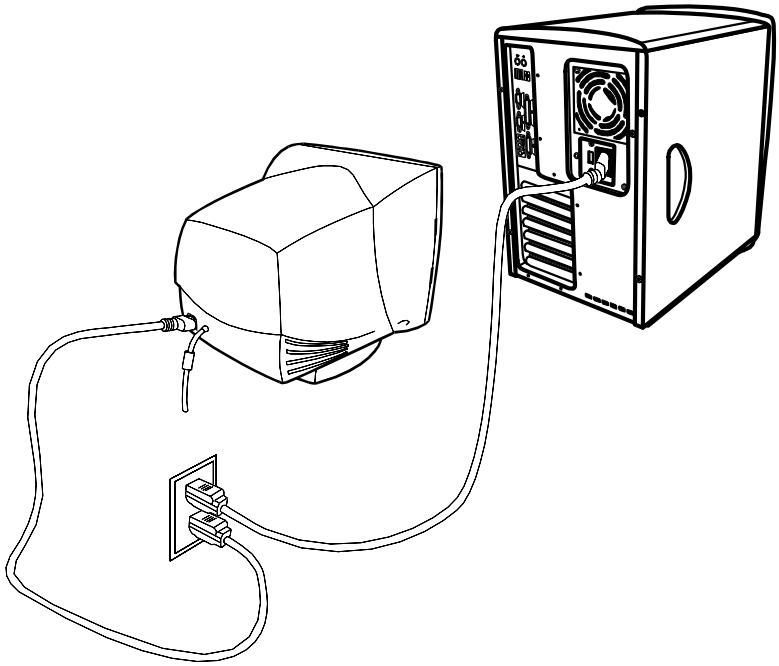

Figure 2-9: Set AC Voltage Switch and Connect Power Cords

4. Check the voltage setting (set to 115V for USA) on the AC Voltage Switch just above the AC Power connector then connect the power cords for both the computer and the monitor.

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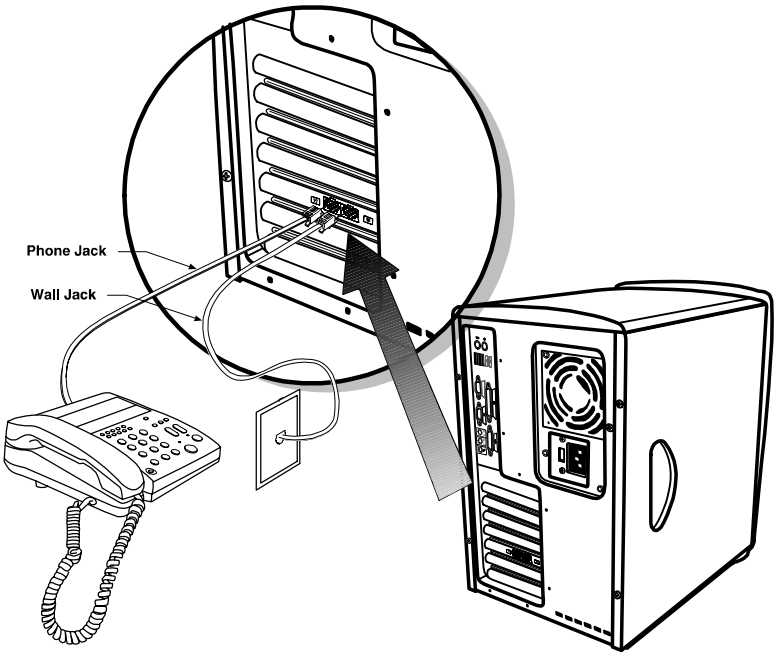

Figure 2-10: Phone Line and Telephone Connections

5. Connect the telephone line cable between the telephone jack on the wall and the Phone Line Connector. Connect the telephone's cable to the Telephone Connector.

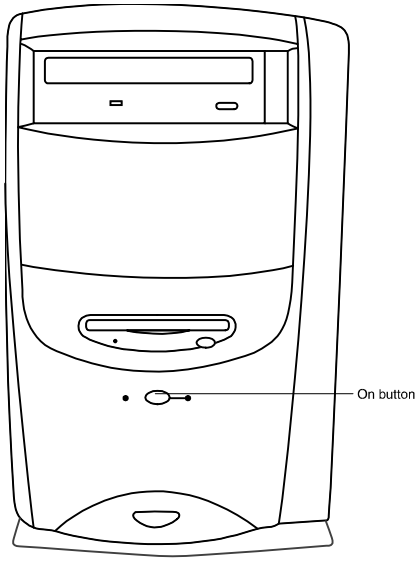

Figure 2-11: Turn on Power

6. Turn on the power to the monitor and then the computer.

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BIOS Setup for the HP Pavilion 6300 and 6400 PCs

Introduction

This part of the chapter shows and tells you the basics of how to use the Setup program that is built into HP Pavilion 6353, 6356, 6357, 6403, 6405, 6407, 6408, 6409, 6410, 6418, 6460, 6466, and the 6470Z system BIOS (a more detailed discussion of the HP Pavilion 6300 Series PC Setup program can be found in Section 14 of the Spring 1999 Technical Service Handbook).

The Setup program makes it possible to change and store system configuration information such as the types of peripherals that are installed, the boot-up sequence for the system, and configuring memory. The Setup information is stored in CMOS random access memory (RA M) and is backed up by a battery on the motherboard when power is off.

CAUTION
The information stored by the Setup program is essential. It should not be changed arbitrarily. To make sure you have a reference to the Setup values for your system, write down the current settings and keep this record up-to-date.

About the Setup Menu Screen

The Setup program initially displays the Main menu screen. In each screen there are options for modifying the system configuration. Select a menu screen by pressing the left or right arrow keys. Use the up or down arrow keys to select items on the screen. Use the Enter key to select an item for modification. For certain items, pressing Enter will bring up a submenu. After you have selected a menu item, use the arrow keys to modify the settings. Press the Esc key to move back a screen.

Setup Menus	Description
Main	Use this menu for basic system configuration
Advanced	Use this menu to set the Advanced Features available on the system's chipset.
Power	Use this menu to configure Power Management features.
Boot	Use this menu to determine the system's startup sequence.
Exit	Use this menu to save or discard changes made in the current session, or to load the system defaults

Table 2-11: Understanding the BIOS Setup Menu Screens for the HP Pavilion

There may be some differences in the fields depending on the specific HP Pavilion PC you are working with. Refer to Section 14 of the Spring 1999 Technical Service Handbook for system specific BIOS settings. The settings shown here are for the HP Pavilion Model 6470Z for the U.S. and Canada.

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Main Menu	Default Settings	Description
System Time	HH:MM:SS	Set the system time
System Date	MM/DD/YYYY	Set the system date
Language	English (US)	Set the system language
Legacy Diskette A	1.44 Mb 3½"	This field is used to configure the format for Floppy Disk Drive A.
Primary Master	QUANTUM Bigfoot TS12.7AT	This is a submenu that is used to configure the Primary Master device. This is the Disk Drive C: and is automatically configured by the computer.
Primary Slave	None (this is a submenu)	This is a submenu that is used to configure the Primary Slave device. It is automatically configured by the computer.
Secondary Master	CD-532E-B	This is a submenu that is used to configure the Secondary Master device. This is the CD-ROM and is automatically configured by the computer.
Secondary Slave	IOMEGA ZIP 100 (this is a submenu)	This is a submenu that is used to configure the Secondary Slave device. It is automatically configured by the computer.
Installed Memory	96 MB	Displays the amount of conventional memory detected during bootup.
Memory Bank 0	64 MB SDRAM †	Displays the amount and type of RAM that is DIMM Bank 0 during bootup.
Memory Bank 1	32 MB SDRAM †	Displays the amount and type of RAM that is DIMM Bank 1, if any, during bootup. (NOTE: Some systems have a Memory Bank 2 setting)
Core Version	4.06	Displays the BIOS version.
BIOS Revision	1.00 11/13/98 †	Displays the BIOS version.

Table 2-12: Understanding the BIOS Setup Main Menu
(† = system auto detects this field, not changeable)

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Primary Master Submenu	Default Settings
Type	Auto
CHS Format	
Cylinders	17475 (determined by auto configure)
Heads	15 (determined by auto configure)
Sectors	63 (determined by auto configure)
Maximum Capacity	8455 MB (determined by auto configure)
LBA Format	
Total Sectors	25075008 (determined by auto configure)
Maximum Capacity	12838 MB (determined by auto configure)
Multi-Sector Transfers	16 Sectors
LBA Mode Control	Enabled (determined by auto configure)
32 Bit I/O	Enabled
Transfer Mode	Fast PIO 4 (determined by auto configure)
Ultra DMA Mode	Mode 2 (determined by auto configure)

Table 2-13: Primary Master Submenu Settings

Advanced Menu	Default Setting
CPU Type	Pentium II (set by the computer)
CPU Speed	400 MHz (set by the computer)
Cache RAM	512 KB
Installed O/S	Win98/WinNT5.0
Reset Configuration Data	No
Default Primary Video Adapter	PCI
PS/2 Mouse	Auto Detect
Large Disk Access Mode	DOS
Local Bus IDE Adapter	Both
PCI Configuration	Press Enter
I/O Device Configuration	Press Enter

Table 2-14: Advanced Menu Default Settings

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PCI Configuration Submenu	Default Settings
TV Output Format	NTSC
ISA graphics device installed	No
PCI/PnP ISA UMB Region Exclusion	Press Enter for submenu
PCI/PnP ISA IRQ Resource Exclusion	Press Enter for submenu

Table 2-15: Main PCI Configuration Submenu Settings

PCI/PnP ISA UMB Region Exclusion Submenu	Default Settings
C800 - CBFF	Available
CC00 - CFFF	Available
D000 - D3FF	Available
D400 - D7FF	Available
D800 - DBFF	Available
DCFF - DFFF	Available

Table 2-16: PCI/PnP ISA UMB Region Exclusion Submenu Settings

PCI/PnP ISA IRQ Region Exclusion Submenu	Default Settings
IRQ 3	Available
IRQ 4	Available
IRQ 5	Available
IRQ 7	Available
IRQ 9	Available
IRQ 10	Available
IRQ 11	Available

Table 2-17: PCI/PnP ISA IRQ Region Exclusion Submenu Settings

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Peripheral Configuration Submenu	Default Settings
Serial Port A	Enabled
Base I/O Address	3F8
Interrupt	IRQ4
Parallel port	Enabled
Mode	Bi-directional
Base I/O Address	378
Interrupt	IRQ7
Floppy Disk Controller	Enabled
Base I/O Address	Primary
Floppy Drive Swap	Disabled

Table 2-18: Peripheral Configuration Submenu Settings

Power Configuration Submenu	Default Settings
Power Savings	Customized
Auto Suspend Timeout	Off
Hard Disk Timeout	Disabled
Resume On Time	Off
Resume Time	[00:00:00]

Table 2-19: Power Configuration Submenu Settings

Boot Configuration Submenu	Default Settings
Removable Devices	To change the start up order, highlight a device and use the + or - key on the numeric keypad to move it to the desired location.
ATAPI CD-ROM	
Hard Drive	
Network Boot	
Hard Drive	Press Enter (shows settings which are not changeable)
Removable Devices	Press Enter (shows settings which are not changeable)
Boot-time Diagnostic Screen	Disabled
Quick Boot Mode	Enabled

Table 2-20: Boot Configuration Menu Settings

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Exit Menu	Selections
Exit Saving Changes	Press Enter
Exit Discarding Changes	Press Enter
Load Setup Defaults	Press Enter
Discard Changes	Press Enter
Save Changes	Press Enter

Table 2-21: Exit Menu

Refer to Section 14 of the Technical Service Handbook for a more detailed explanation of each part of the Setup program.

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Part 3 - HP Pavilion 8400 Series PCs

The HP Pavilion 8400 Series PCs are shipped fully configured with all standard memory, I/O, and software installed. The purpose of this part of the lesson is to provide you with the knowledge and skills to:

- Identify and understand the function of the controls, indicators and connectors for the HP Pavilion 8400 Series PCs.
- Understand the BIOS Setup Configuration program for the HP Pavilion 8400 Series PCs.

In this chapter, you are required to read the information in this book and reference both the HP Pavilion Technical Handbook and the HP Pavilion Self-Paced Interactive Service Training CD-ROMs. In this book, you will learn the specific tasks in order to be able to perform the skills demonstrated in the CD-ROM.

Performance Objective

In exercises, the student will correctly identify the specified connectors, controls, and indicators for all of the HP Pavilion 8400 Series PCs.

Selecting a Site

The HP Pavilion 8400 Series PC is designed to operate in a typical home, home office, or commercial environment. Choose a site that is:

- Located near a grounded, three pronged power outlet. For the United States and Canada, this means a NEMA 5-15R outlet for 115V ac. For other regions, this means a grounded, three pronged power outlet approved by the electrical code of the region.
- Clean and relatively dust-free.
- Well ventilated and away from sources of heat (heater vent, fireplace, etc.) including direct sunlight.
- Isolated from strong electromagnetic fields produced by electrical devices (such as air conditioners, large fans, large electric motors, radio and TV transmitters, and high frequency security devices).

Setting up the HP Pavilion 8400 Series PC

As you learned earlier, the HP Pavilion PC comes fully configured. However, you do need to learn about the controls, indicators, and connectors.

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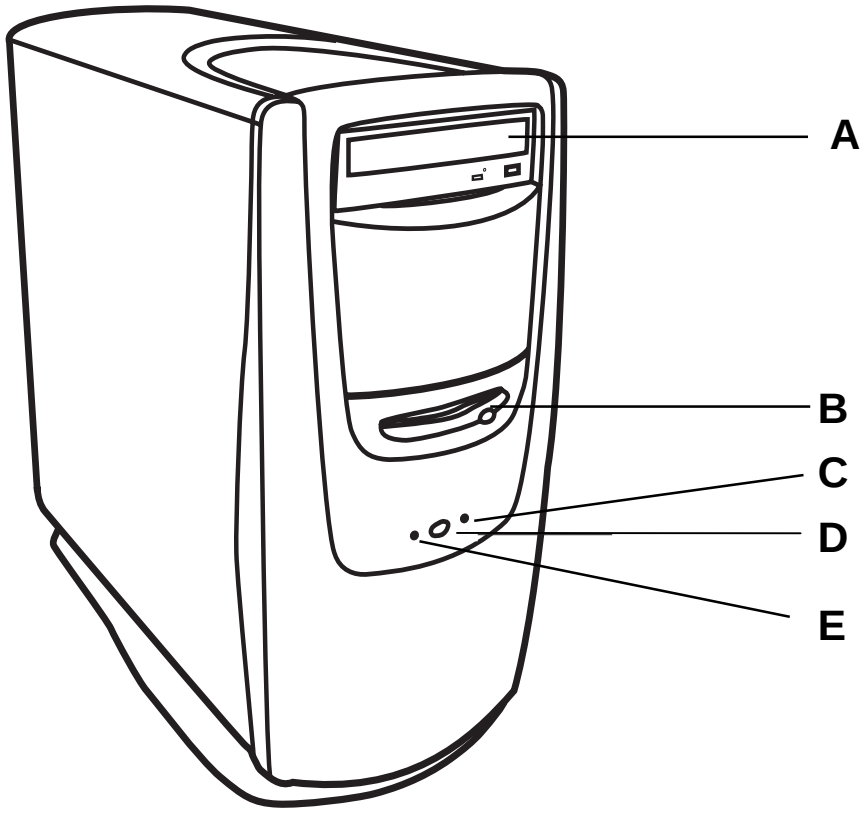
VIDEO
Please review the HP Pavilion 8400 Series PCs front panel and back panel material on the HP Pavilion Interactive Service Training CD-ROM. Then proceed in this guide. You may want to review various parts of the Service Training CD-ROM as you move through the activities within this chapter.

Front Panel

The front panel for all of the HP Pavilion 8400 Series PCs are the same.

Exercise 2-3: HP Pavilion 8400 Series PC Front Panel

Complete this exercise after viewing the HP Pavilion 8400 Series PCs front panel section of the Service Training CD-ROM. You may review that portion of the Service Training CD-ROM as often as necessary to complete this exercise.



_____ Hard Drive Activity Indicator

_____ 3½" 1.44 Mbyte Floppy disk drive

_____ Power ON/OFF Switch

_____ Power On Indicator

_____ CD-ROM Drive or DVD-ROM Drive

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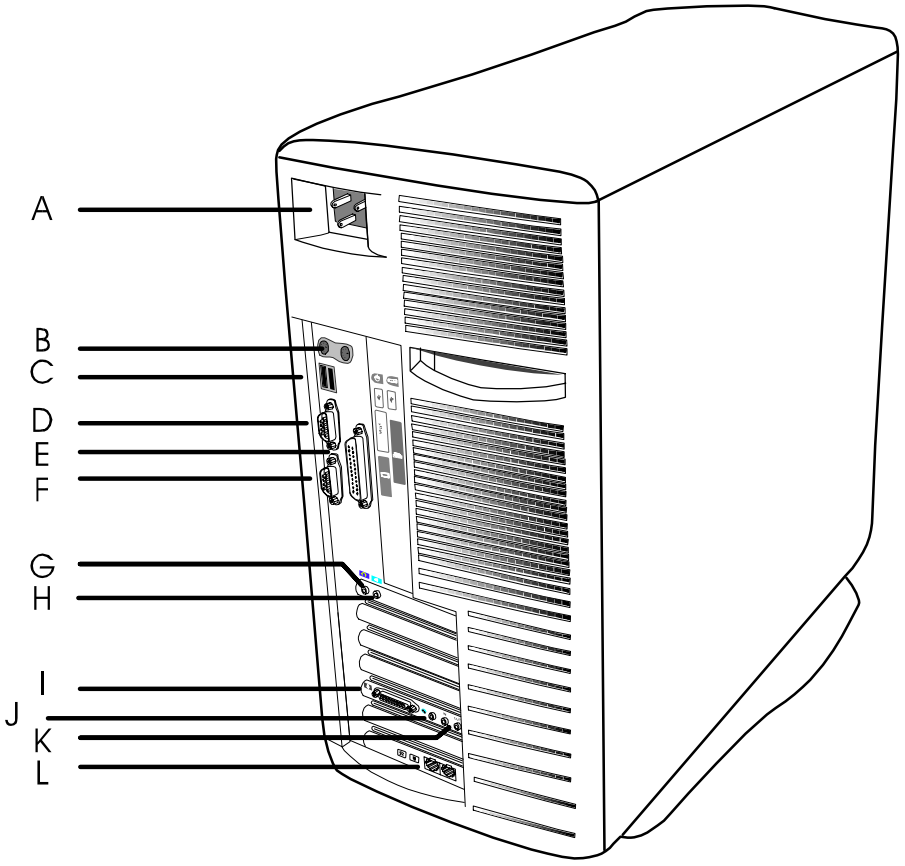
Back Panel

The there are slight variations to the back panel of the HP Pavilion 8400 Series PCs, depending on the motherboard used. Please be sure to review the back panel portion of the HP Pavilion 8400 Interactive Service Training CD-ROM.

Exercise 2-4: HP Pavilion 8400 Series PC Back Panel

Complete this exercise after viewing the HP Pavilion 8400 Series PCs front panel section of the Service Training CD-ROM. You may review that portion of the Service Training CD-ROM as often as necessary to complete this exercise.



_____ Microphone connector

_____ Monitor connector

_____ Joystick connector

_____ Parallel port connector

_____ Modem connection

_____ Headphone connector

_____ Power connector

_____ Serial port connector

_____ Speaker connector

_____ Mouse and Keyboard connectors

_____ USB connectors

_____ Line IN and Line OUT connectors

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Hardware Setup of the HP Pavilion 8400 Series PC

Follow the procedures below to setup the HP Pavilion Series PC.

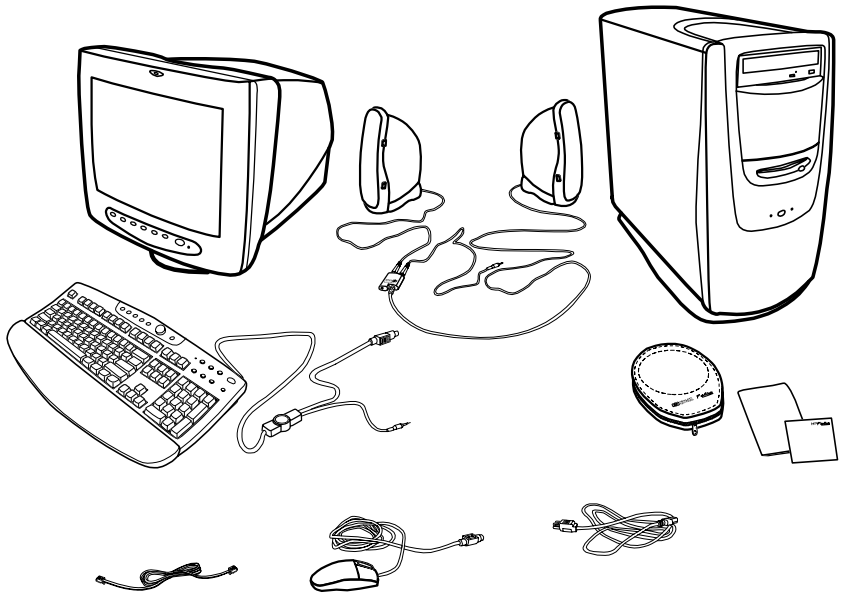

Figure 2-12: HP Pavilion 8400 Series PC Product Pack (display is not included)

1. Unpack the system.

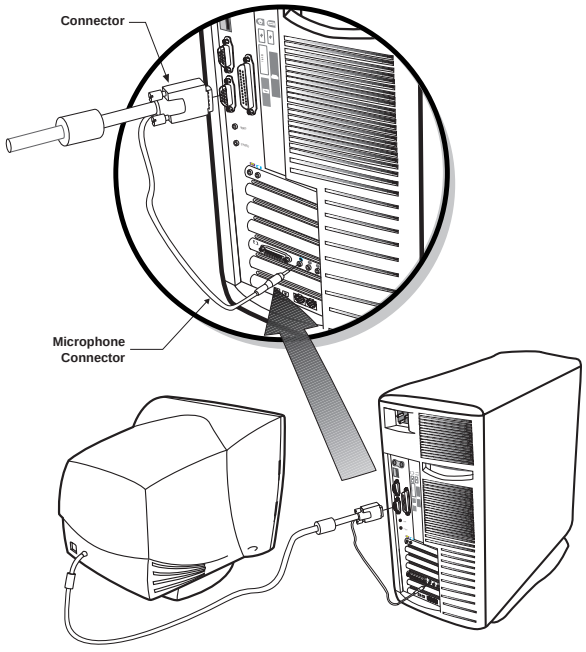

Figure 2-13: Display Connection

2. Connect the display and microphone connectors as shown. If you are not using an HP Multimedia Display, there may not be a microphone connector.

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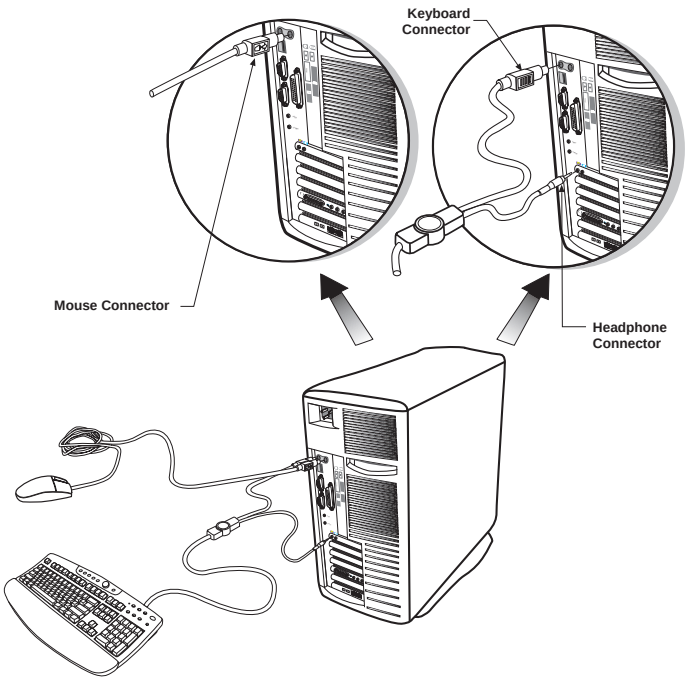

Figure 2-14: Keyboard and Mouse Connections

3. Connect the keyboard and mouse

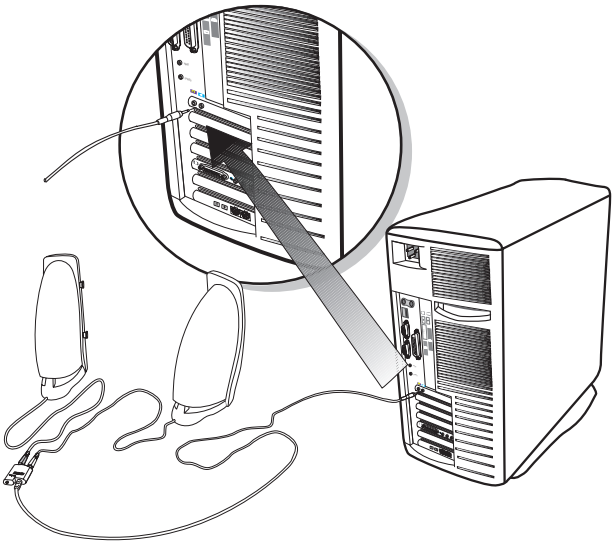

Figure 2-15: Audio Connections

4. There are 2 different methods of connecting the speakers, depending on the type of speakers you have. One method is shown in Figure 2-3 earlier in this section. Figure 2-16 above shows the other. For this method, connect the speaker "Y" cable between the computer and the speakers. Some speakers can be mounted on the sides of HP Multimedia Displays.

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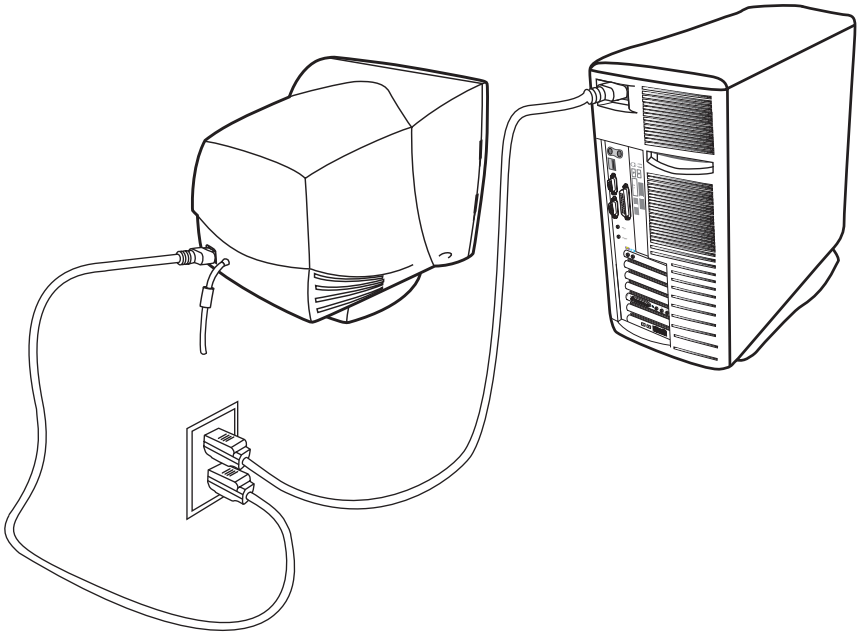

Figure 2-16: Set AC Voltage Switch and Connect Power Cords

5. Check the voltage setting (set to 115V for USA) on the AC Voltage Switch just above the AC Power connector then connect the power cords for both the computer and the monitor.

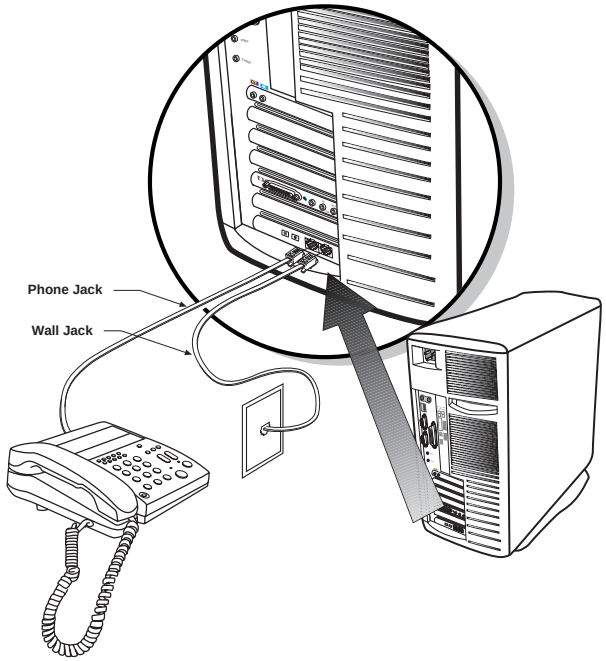

Figure 2-17: Phone Line and Telephone Connections

6. Connect the telephone line cable between the telephone jack on the wall and the Phone Line Connector. Connect the telephone's cable to the Telephone Connector.

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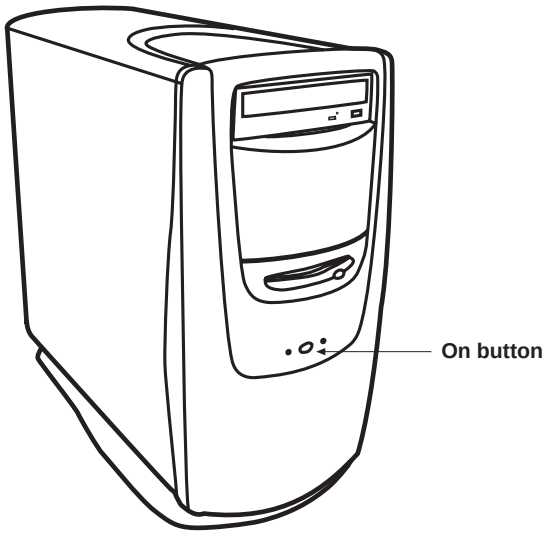

Figure 2-18: Turn on Power

7. Turn on the power to the monitor and then the computer.

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BIOS Setup for the HP Pavilion 8400 Series PCs

Introduction

This part of the chapter shows and tells you the basics of how to use the Setup program that is built into the system BIOS (a more detailed discussion of the HP Pavilion 8400 Series PC Setup program can be found in Section 14 of the Spring 1999 Technical Service Handbook).

The Setup program makes it possible to change and store system configuration information such as the types of peripherals that are installed, the boot-up sequence for the system, and configuring memory. The Setup information is stored in CMOS random access memory (RAM) and is backed up by a battery on the motherboard when power is off.

CAUTION
The information stored by the Setup program is essential. It should not be changed arbitrarily. To make sure you have a reference to the Setup values for your system, write down the current settings and keep this record up-to-date.

About the Setup Menu Screen

The Setup program initially displays the Main menu screen. In each screen there are options for modifying the system configuration. Select a menu screen by pressing the left or right arrow keys. Use the up or down arrow keys to select items on the screen. Use the Enter key to select an item for modification. For certain items, pressing Enter will bring up a submenu. After you have selected a menu item, use the arrow keys to modify the settings. Press the Esc key to move back a screen.

Setup Menus	Description
Main	Use this menu for basic system configuration
Advanced	Use this menu to set the Advanced Features available on the system's chipset.
Power	Use this menu to configure Power Management features.
Boot	Use this menu to determine the system's startup sequence.
Exit	Use this menu to save or discard changes made in the current session, or to load the system defaults

Table 2-22: Understanding the BIOS Setup Menu Screens for the HP Pavilion

There may be some differences in the fields depending on the specific HP Pavilion PC you are working with. Refer to Section 14 of the Spring 1999 Technical Service Handbook for system specific BIOS settings. The settings shown here are for the HP Pavilion Model 8480A for the U.S. and Canada.

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Main Menu	Default Settings	Description
System Time	HH:MM:SS	Set the system time
System Date	MM/DD/YYYY	Set the system date
Language	English (US)	Set the system language
Legacy Diskette A	1.44 Mb 3½"	This field is used to configure the format for Floppy Disk Drive A.
Primary Master	QUANTUM Bigfoot TS12.7AT	This is a submenu that is used to configure the Primary Master device. This is the Disk Drive C: and is automatically configured by the computer.
Primary Slave	None (this is a submenu)	This is a submenu that is used to configure the Primary Slave device. It is automatically configured by the computer.
Secondary Master	CD-532E-B	This is a submenu that is used to configure the Secondary Master device. This is the CD-ROM and is automatically configured by the computer.
Secondary Slave	IOMEGA ZIP 100 (this is a submenu)	This is a submenu that is used to configure the Secondary Slave device. It is automatically configured by the computer.
Installed Memory	96 MB	Displays the amount of conventional memory detected during bootup.
Memory Bank 0	64 MB SDRAM †	Displays the amount and type of RAM that is DIMM Bank 0 during bootup.
Memory Bank 1	32 MB SDRAM †	Displays the amount and type of RAM that is DIMM Bank 1, if any, during bootup. (NOTE: Some systems have a Memory Bank 2 setting)
Core Version	4.06	Displays the BIOS version.
BIOS Revision	1.00 11/13/98 †	Displays the BIOS version.

Table 2-23: Understanding the BIOS Setup Main Menu
(† = system auto detects this field, not changeable)

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Primary Master Submenu	Default Settings
Type	Auto
CHS Format	
Cylinders	17475 (determined by auto configure)
Heads	15 (determined by auto configure)
Sectors	63 (determined by auto configure)
Maximum Capacity	8455 MB (determined by auto configure)
LBA Format	
Total Sectors	25075008 (determined by auto configure)
Maximum Capacity	12838 MB (determined by auto configure)
Multi-Sector Transfers	16 Sectors
LBA Mode Control	Enabled (determined by auto configure)
32 Bit I/O	Enabled
Transfer Mode	Fast PIO 4 (determined by auto configure)
Ultra DMA Mode	Mode 2 (determined by auto configure)

Table 2-24: Primary Master Submenu Settings

Advanced Menu	Default Setting
CPU Type	Pentium II (set by the computer)
CPU Speed	400 MHz (set by the computer)
Cache RAM	512 KB
Installed O/S	Win98/WinNT5.0
Reset Configuration Data	No
Default Primary Video Adapter	PCI
PS/2 Mouse	Auto Detect
Large Disk Access Mode	DOS
Local Bus IDE Adapter	Both
PCI Configuration	Press Enter
I/O Device Configuration	Press Enter

Table 2-25: Advanced Menu Default Settings

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PCI Configuration Submenu	Default Settings
TV Output Format	NTSC
ISA graphics device installed	No
PCI/PnP ISA UMB Region Exclusion	Press Enter for submenu
PCI/PnP ISA IRQ Resource Exclusion	Press Enter for submenu

Table 2-26: Main PCI Configuration Submenu Settings

PCI/PnP ISA UMB Region Exclusion Submenu	Default Settings
C800 - CBFF	Available
CC00 - CFFF	Available
D000 - D3FF	Available
D400 - D7FF	Available
D800 - DBFF	Available
DCFF - DFFF	Available

Table 2-27: PCI/PnP ISA UMB Region Exclusion Submenu Settings

PCI/PnP ISA IRQ Region Exclusion Submenu	Default Settings
IRQ 3	Available
IRQ 4	Available
IRQ 5	Available
IRQ 7	Available
IRQ 9	Available
IRQ 10	Available
IRQ 11	Available

Table 2-28: PCI/PnP ISA IRQ Region Exclusion Submenu Settings

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Peripheral Configuration Submenu	Default Settings
Serial Port A	Enabled
Base I/O Address	3F8
Interrupt	IRQ4
Parallel port	Enabled
Mode	Bi-directional
Base I/O Address	378
Interrupt	IRQ7
Floppy Disk Controller	Enabled
Base I/O Address	Primary
Floppy Drive Swap	Disabled

Table 2-29: Peripheral Configuration Submenu Settings

Power Configuration Submenu	Default Settings
Power Savings	Customized
Auto Suspend Timeout	Off
Hard Disk Timeout	Disabled
Resume On Time	Off
Resume Time	[00:00:00]

Table 2-30: Power Configuration Submenu Settings

Boot Configuration Submenu	Default Settings
Removable Devices	To change the start up order, highlight a device and use the + or - key on the numeric keypad to move it to the desired location.
ATAPI CD-ROM	
Hard Drive	
Network Boot	
Hard Drive	Press Enter (shows settings which are not changeable)
Removable Devices	Press Enter (shows settings which are not changeable)
Boot-time Diagnostic Screen	Disabled
Quick Boot Mode	Enabled

Table 2-31: Boot Configuration Menu Settings

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Exit Menu	Selections
Exit Saving Changes	Press Enter
Exit Discarding Changes	Press Enter
Load Setup Defaults	Press Enter
Discard Changes	Press Enter
Save Changes	Press Enter

Table 2-32: Exit Menu

Refer to Section 14 of the Technical Service Handbook for a more detailed explanation of each part of the Setup program.

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Review Questions for Chapter 2

Question 2-1

TRUE or FALSE: When setting up an HP Pavilion 6460 Series PC, the sound cable, microphone cable, and telephone cable all go to connectors on the same board in the computer.

Your Answer:_____

Question 2-2

Which system(s) in the HP Pavilion 4400 Series computers listed comes standard with 32 Mbytes of RAM?

A) HP Pavilion 4404

B) HP Pavilion 4410

C) HP Pavilion 4440

D) None of the above

Question 2-3

When turning on the HP Pavilion 8480Z, what key should you press while the HP Logo is on the screen to enter the system's SETUP menus?

A) Ctrl + S

B) Ctrl + Alt + Del

C) The F1 key

D) Simply click the left mouse button once

Question 2-4

If you need more information about the system BIOS, you should refer to:

A) The Service Training CD-ROM

B) Section 5 of the Technical Service Handbook

C) Section 13 of the Technical Service Handbook

D) Section 14 of the Technical Service Handbook

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Chapter 3
A Closer Look at the HP Pavilion Series PCs

Introduction

This chapter provides you with an understanding about how the HP Pavilion PC works. The chapter will include a description of the major components of the PC:

- The AMD K6-2 Processors
- The Intel Pentium II and Celeron Processors
- System Memory
- System Power
- Plug and Play
- The High-Speed CD-ROM Drive
- The DVD Drive
- Fax/Modem Cards
- Power Management
- Enhanced IDE Peripheral Interface
- System Expansion

Understanding the components of the PC and how they relate to each other will enhance your ability to support and maintain the product.

About the AMD K6-2 Processors

The HP Pavilion 4402, 4404, 4405, 4408, 4410, 4431, 4440, 4443, 6356, 6357 systems are designed to operate with either the AMD K6-2 Processor. These processors deliver leading edge, sixth-generation RISC86® superscalar performance for running both 16-bit and 32-bit code, enabling leading-edge performance on the Microsoft Windows '98 and Windows NT operating systems, as well the installed base of x86 software.

Table 3-1 below shows the specific processor chip speed and SDRAM RAM included for each system. The processor, in addition to its expanded data and addressing capabilities, includes the following features:

- Sixth-generation performance competitive with the Pentium® II processor
- High performance on Windows '98 and Windows NT operating systems
- Advanced, six-issue RISC86® superscalar microarchitecture
    - Seven parallel execution units
    - Multiple sophisticated x86-to-RISC86 instruction decoders
    - Advanced two-level branch prediction
    - Speculative execution
    - Full out-of-order execution
    - Register renaming and data forwarding
- Large 64-Kbyte on-chip L1 caches

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  - 32-Kbyte instruction cache plus predecode cache
  - 32-Kbyte writeback dual-ported data cache
  - MESI protocol for cache coherency
- High-performance IEEE 754-compatible floating-point unit (FPU)
- High-performance, industry-standard MMX(TM) instructions
- Fully compatible system management mode (SMM)
- Socket 7 compatibility enabling PC manufacturers and resellers to leverage low-cost infrastructure and system designs
- 32 KB Level 1 cache
- Secondary cache of 512 KB
- SDRAM memory expandable to 256 Mbytes

Refer to Table 3-1 below for system specific relating to the motherboard features.

HP Pavilion Model	Processor and Speed	SDRAM (Max = 256 MB)	Video Memory
4402	AMD K6-2 – 300 MHz	32 MB	4 MB
4404	AMD K6-2 – 333 MHz	48 MB	4 MB
4405	AMD K6-2 – 333 MHz	32/48 MB	4 MB
4408	AMD K6-2 – 366 MHz	48 MB	2 MB
4410	AMD K6-2 – 333 MHz	64 MB	4 MB
4431	AMD K6-2 – 333 MHz	48 MB	4 MB
4440 U.K.	AMD K6-2 – 366 MHz	64 MB	4 MB
4440 North America	AMD K6-2 – 333 MHz	64 MB	4 MB
4443	AMD K6-2 – 333 MHz	64 MB	4 MB
6356	AMD K6-2 – 333 MHz	64 MB	4 MB
6357	AMD K6-2 – 333 MHz	64 MB	4 MB

Table 3-1: System Features by HP Pavilion Model

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About the Intel Pentium II and Celeron Processors

The HP Pavilion 4406, 4407, 4409, 4450, 4451, 4456, 6353, 6403, 6404, 6405, 6407, 6408, 6409, 6418, 6460, 6466, 6470Z and all of the 8400 PCs are designed to operate with the Intel Pentium II or Celeron Processor running at 333, 350, 366, 400, or 450 MHz. The microprocessor implements MMX™ technology and maintains full backward compatibility with the 8086, 80286, Intel386™, Intel486™, Pentium processor, and Pentium Pro processors. The system comes with 32, 48, 64, 96, or 128 Mbytes of SDRAM memory.

Table 3-2 below shows the specific Intel microprocessor chip speed and SDRAM RAM included for each system. The processor, in addition to its expanded data and addressing capabilities, includes the following features:

- Ready for the next generation OverDrive processor
- On-chip numeric co-processor (compatible with the Intel 486™ DX processor and compliant with ANSI/IEEE standard 754-1985)
- 32 KB Level 1 cache (16 KB for data, 16 KB for code)
- 512 KB Pipeline Burst Level 2 cache in the Pentium II cartridge (the Celeron processor chips come with no L2 cache)
- Read and write burst mode bus cycles
- Intel 440EX or 440BX AGP chipset and PCI/IDE Interface
- SDRAM memory expandable to 256 Mbytes or 384 Mbytes

P Pavilion Model	Pentium II Processor Speed	SDRAM	Video Memory
4406	Intel Celeron 333 MHz 128 L2 Cache	32 MB (66 MHz) Expandable to 256 MB	Rage IIC/ 4MB SDRAM
4407	Intel Celeron 366 MHz 128 L2 Cache	48 MB (66 MHz) Expandable to 256 MB	Rage IIC/ 4MB SDRAM
4409	Intel Celeron 366 MHz 128 L2 Cache	64 MB (66 MHz) Expandable to 256 MB	Rage IIC/ 4MB SDRAM
4450	Intel Celeron 366 MHz 128 L2 Cache	64 MB (66 MHz) Expandable to 256 MB	Rage IIC/ 4MB SDRAM
4451	Intel Celeron 366 MHz 128 L2 Cache	64 MB (66 MHz) Expandable to 256 MB	Rage IIC/ 4MB SDRAM
4456	Intel Celeron 366 MHz 128 L2 Cache	48 MB (66 MHz) Expandable to 256 MB	Rage IIC/ 4MB SDRAM
6353	Pentium II 350 MHz 512KB L2 Cache	64 MB (100 MHz) Expandable to 384 MB	ATI RagePro AGP 2X 3D 8MB SDRAM
6403	Pentium II 350 MHz 512KB L2 Cache	48 MB (100 MHz) Expandable to 256 MB	ATI RagePro AGP 2X 3D 8MB SDRAM

Table 3-2: System Features by HP Pavilion Model (continued on next page)

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HP Pavilion Model	Pentium II Processor Speed	SDRAM	Video Memory
6404	Pentium II 350 MHz 512KB L2 Cache	48 MB (100 MHz) Expandable to 256 MB	ATI RagePro AGP 2X 3D 8MB SDRAM
6405 AP	Pentium II 350 MHz 512KB L2 Cache	64 MB (100 MHz) Expandable to 256 MB	ATI RagePro AGP 2X 3D 8MB SDRAM
6405 Europe	Intel Celeron 400 MHz 128 L2 Cache	64 MB (66 MHz) Expandable to 256 MB	ATI RagePro AGP 2X 3D 8MB SDRAM
6407	Intel Celeron 400 MHz 128 L2 Cache	64 MB (66 MHz) Expandable to 256 MB	ATI RagePro AGP 2X 3D 8MB SDRAM
6408	Intel Celeron 400 MHz 128 L2 Cache	64 MB (66 MHz) Expandable to 256 MB	ATI RagePro AGP 2X 3D 8MB SDRAM
6409	Pentium II 400 MHz 512KB L2 Cache	64 MB (100 MHz) Expandable to 256 MB	ATI RagePro AGP 2X 3D 8MB SDRAM
6418	Pentium II 400 MHz 512KB L2 Cache	64 MB (100 MHz) Expandable to 256 MB	ATI RagePro AGP 2X 3D 8MB SDRAM
6460	Intel Celeron 400 MHz 128 L2 Cache	96 MB (66 MHz) Expandable to 256 MB	ATI RagePro AGP 2X 3D 8MB SDRAM
6466	Intel Celeron 400 MHz 128 L2 Cache	96 MB (66 MHz) Expandable to 256 MB	ATI RagePro AGP 2X 3D 8MB SDRAM
6470Z	Pentium II 400 MHz 512KB L2 Cache	96 MB (100 MHz) Expandable to 256 MB	ATI RagePro AGP 2X 3D 8MB SDRAM
8418	Pentium II 450 MHz 512KB L2 Cache	128 MB (100 MHz) Expandable to 256 MB	ATI RagePro AGP 2X 3D 8MB SDRAM
8480Z	Pentium II 450 MHz 512KB L2 Cache	128 MB (100 MHz) Expandable to 256 MB	ATI RagePro AGP 2X 3D 8MB SDRAM

Table 3-2: System Features by HP Pavilion Model (continued)

The microprocessor is not mounted directly on motherboard. It is mounted on the Processor Module which plugs into the processor connector.

The motherboard supports a single Intel Celeron or Intel Pentium II processor. The processor's VID pins automatically program the voltage regulator on the motherboard to the required processor voltage. The motherboard currently supports processors that run internally at 300, 333, 350, 366, 400, or 450 MHz and have either 0 KB, 128 KB or 512 KB second-level cache.

The processor implements MMX™ technology and maintains full backward compatibility with the 8086, 80286, Intel386™, Intel486™, Pentium, and Pentium Pro processors. The processor's numeric coprocessor significantly increases the speed of floating-point operations and complies with ANSI/IEEE standard 754-1985.

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About System Memory

The HP Pavilion PCs covered in this guide come with either 32 Mbytes, 48 Mbytes, 64 Mbytes, 96 Mbytes or 128 Mbytes of SDRAM configured as base (conventional) and extended memory. Operating systems such as DOS and Windows '98 and all application programs use base memory. For better performance, the HP Pavilion PCs has been configured to allow Windows '98 to utilize part of extended memory, thus freeing up part of base memory for other programs.

Minimum memory size is 32 Mbytes. The maximum memory size for some of the HP Pavilion PCs discussed in this chapter is 256 Mbytes, using 2 - 128 MB DIMM modules with the exception of the HP Pavilion 6353 which has a maximum memory size of 384 Mbytes, using 3 - 128 MB DIMM modules.

The 2 or 3 sockets are arranged as Bank 0 and Bank 1 or Bank 0, Bank 1 and Bank 2. There are no jumper settings required for the memory size or type. It is automatically detected by the system BIOS. Tin lead DIMMs are required to be used when adding DRAM.

The table below demonstrates how Total System Memory is determined by the DIMMs in Banks 0 and 1. A similar approach can be taken (but not shown here) for systems with 3 DIMM slots and a maximum system memory of 384 Mbytes.

DIMM 1 (Bank 0)	DIMM 2 (Bank 1)	Total System Memory
16 MB	Empty	16 MB
Empty	16 MB	16 MB
16 MB	16 MB	32 MB
32 MB	Empty	32 MB
Empty	32 MB	32 MB
16 MB	32 MB	48 MB
32 MB	16 MB	48 MB
32 MB	32 MB	64 MB
64 MB	Empty	64 MB
64 MB	16 MB	80 MB
64 MB	32 MB	96 MB
64 MB	64 MB	128 MB
128 MB	Empty	128 MB
128 MB	16 MB	144 MB
128 MB	32 MB	160 MB
128 MB	64 MB	192 MB
128 MB	128 MB	256 MB

Table 3-3: Possible DIMM Memory Configurations for systems with 2 DIMM sockets

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About System Power

AC Input

Input Frequency:	50/60 Hz
Voltage:	115V (100-127V) ~ 4A 220V (200 - 240V) ~ 2A

Power Supply Output

DC Voltage	Maximum
+12V	4.2A
+5V	18A

WARNING
To avoid damage to the power supply, do NOT exceed a total of 120 watts power draw.

NOTE
In geographical regions that are susceptible to electrical storms, it is strongly recommended that the system be plugged into a surge suppresser.

CAUTION
Do not overload the power supply by installing add-in boards that draw excessive current.

About Plug and Play

The HP Pavilion PCs are fully Plug and Play compatible. Plug and Play makes it easier to add components to your system. This feature provides three important benefits:

- PCI cards and Plug and Play ISA cards are configured automatically
- IDE hard disks and main memory are configured automatically
- Non-Plug and Play ISA cards can be configured using the ISA Configuration Utility

About the High-Speed CD-ROM Drive

The HP Pavilion 4400, 6300, 6400, and 8400 Series PCs come with 24X, or 32X Max High-Speed CD-ROM drive or a DVD-ROM drive. The CD-ROM drive is capable of reading compact discs meeting international standards, such as Photo CD, multi-session, ISO-9660, and XA (eXtended Architecture) discs.

The 24X CD-ROM drive can transfer data at an average rate 2400 Kbytes/sec and can obtain transfer rates as high as 3600 KBytes/sec, with an average access speed of 120 ms. The 32X CD-ROM drive can transfer data at an average rate 3200 Kbytes/sec and can obtain transfer rates as high as 3600 KBytes/sec, with an average access speed of 120 ms. All of the CD-ROM drives support 2 channels of audio with a sampling frequency of 44.1 KHz.

This internal CD-ROM drive connects to the system using the standard ATAPI/IDE (Advanced Technology Attachment Packet Interface/Integrated Drive Electronics).

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The CD-ROM drive can be configured in one of two ways. From the CD-ROM manufacturer, the drive comes configured as a "slave" using the same cable as the hard disk drive (this method is known as "daisy chaining"). The other method is a Master, on its own cable to a second IDE controller port.

The CD-ROM, as used in the HP Pavilion PCs, must be configured as a Master. This configuration change is done simply by moving the jumper on the Device Configuration Connector on the rear of the drive to the far right position, labeled Master (see Section 6 of the *Technical Service Handbook* for more information on configuration and installation of the CD-ROM drive).

About the DVD Drive

The HP Pavilion 6405, 6418 and 8418 PCs come with DVD-ROM drives. The Hitachi DVD-ROM Drive is a 5¼" half-height drive that is capable of reading CD-ROMs that meet international standards (i.e., Photo CD, multi-session, ISO-9660, and XA discs), CD-R, CD-Audio, and DVD-ROMs.

CD-ROMs have a storage capacity of 650 Mbytes (Mode-1) or 742 Mbytes (Mode-2) while a single layer DVD-ROM can store approximately 4.7 Gbytes per side and a dual layer DVD-ROM can store approximately 8.5 Gbytes per side for a total storage capacity of approximately 17 Gbytes.

The drive has a high data transfer rate, with a maximum rate of 16.6 Mbytes/sec, and uses a large buffer memory (512 Kbytes) for look ahead cache. For DVD-ROMs, the average access time is 210 ms and for CD-ROMs the average is 130 ms.

This internal DVD-ROM Drive connects to the system using the standard ATAPI/IDE (Advanced Technology Attachment Packet Interface/Integrated Drive Electronics). The drive has 3 ways in which to eject a disk: Software, OPEN/CLOSE button, Emergency eject.

The DVD-ROM drive can be configured in one of two ways. From the manufacturer, the drive comes configured as a "master" on its own cable to a second IDE controller port. The other method is a Slave, using the same cable as the hard disk drive (this method is known as "daisy chaining").

The DVD-ROM, as used in the HP Pavilion, must be configured as a Master. If a replacement drive is configured as Slave, it must be changed for Master operation. The configuration change is done simply by moving the jumper on the Device Configuration Jumper on the rear of the drive to the far right position, labeled Master.

About the Fax/Modem Card

All of the HP Pavilion PCs discussed in this book come with a 56 Kbps Fax/Modem. This high-speed modem transmit data at rates up to 56 Kbps and fax transmission/reception up to 14.4 Kbps.

The V.90 56 Kbps Audio/Fax/Modem

For the HP Pavilion PCs, the Audio/Fax/Modem card and the Sound Amplification Card work together to provide a total communication solution. These cards provide for 16-bit stereo sound, a telephone management device, and a high-speed modem to transform your computer into a complete desktop communications and multimedia center. This modem provides the following key functions:

- Fax Communication: Conveniently send and receive faxes right from the computer at speeds of up to 14,400 bps.
- Data Communication: Connect at high speeds of up to 56,000 bps to Internet, On-line services, BBSs, and other PCs or networks for telecomputing tasks.
- Voice Mailing/Telephone Answering Machine: Set up a sophisticated voice mailing system on the PC.

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- Full-Duplex Speakerphone: Use the high quality speakerphone for hands-free voice communication.
- Digital Simultaneous Voice and Data (DSVD): Talk and perform data transmission simultaneously over a single telephone line.

The Audio/Fax/Modem card is fully Hayes compatible running at speeds up to 56 Kbps (maximum data rate for a fax is 14,400) for Class 1 fax and modem data transmission/ reception. The Audio/Fax/Modem card is Plug and Play compatible. There are no jumpers or switches to set on the board. Under Windows '95, the card is configured for COM2 using IRQ3.

Technical Specifications

- V.90 (56,000 bps)
- V.32bis (14,400 bps)
- V23 (4,800 bps)
- V.22 (1,200 bps)
- Bell 103 (300 bps)
- V.29 (9,600 bps FAX)
- V.21 (300 bps FAX Channel-2)
- V.42 (error correction)
- MNP 2-4 (error correction)
- V.80 Video Ready Interface
- V.34 (28,800 bps and 33,600 bps)
- V.32 (9,600 bps)
- V.22bis (2,400 bps)
- Bell 212A (1,200 bps)
- V.17 (14,400 bps FAX)
- V.27ter (4,800 bps FAX)
- V.42bis (data compression)
- MNP 5 (data compression)
- Digital Simultaneous Voice and Data (DSVD) supporting ITU-T V.70 and Intel DSVD 1.2

About Power Management

The motherboard supports power management via System Management Mode (SMM) interrupts to the CPU and Advanced Power Management (APM Ver. 1.2). The APM capabilities will allow the system to be put into a power managed Stand By state by selecting Suspend from the Start Menu or by pressing the Suspend key on the multimedia keyboard:

Suspend is a quiet, power-saving state that still allows phone calls, faxes, and news updates to come through. Another feature of Suspend is that the computer, when reactivated, will resume normal operation much more quickly than when it is shut down and restarted.

About the Enhanced IDE Peripheral Interface

The motherboard provides two independent high performance bus-mastering PCI IDE interfaces capable of supporting PIO Mode 3 and 4 devices. The system BIOS supports Logical Block Addressing (LBA) and Extended Cylinder Sector Head (ECHS) translation modes as well as AT API (e.g. CD-ROM) devices on both IDE interfaces. Detection of IDE device transfer rate and translation mode capability is automatically determined by the system BIOS.

In the Windows '95 environment, a driver provided by Intel allows the IDE interface to operate as a PCI bus master capable of supporting transfer rates up to 16 MB/sec while minimizing the system demands upon the processor. In true multi-tasking operating systems like Windows '95, the CPU bandwidth freed up by using bus mastering IDE can be used to complete other tasks while disk transfers are occurring, significantly improving performance.

Integrated fast IDE interface:

- Support for up to 4 devices

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- PIO Mode 4 transfers up to 16 MB/sec
- Integrated 8 x 32-bit buffer for PCI IDE burst transfers

About System Expansion

The systems can be expanded in several aspects, including memory, IDE devices, and add-in cards.

Expanding Memory

The HP Pavilion 4400, 6300, 6400 and 8400 Series PCs come with either 32, 48, 64, 96 or 128 Mbytes of memory. Depending on the specific system, DIMMs can be added in various combinations up to the maximum of 2 or 3 - 128 MB DIMMs totaling 256 or 384 Mbytes of RAM. See "About System Memory" above and in Section 5 of the *Technical Service Handbook* for more information about expanding the system's memory.

IDE Devices

The HP Pavilion PC motherboard has an integrated Bus Mastering IDE controller that provides two high performance IDE interfaces for up to four IDE devices (hard drives, CD ROM drive, etc.). The system currently uses 3 IDE devices, 1 - hard disk drive, 1 - 3½" 1.44 Mbyte floppy drive, and the CD-ROM.

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Review Questions for Chapter 3

Question 3-1

The HP Pavilion 4440 PC comes standard with how much Level 1 cache?

A) 8 KB
B) 16 KB
C) 32 KB
D) 64 KB

Question 3-2

The HP Pavilion 6460 PC comes standard with how much Level 2 cache?

A) 0 KB
B) 128 KB
C) 256 KB
D) 512 KB

Question 3-3

The HP Pavilion 6470Z PC comes standard with how much Level 2 cache?

A) 0 KB
B) 128 KB
C) 256 KB
D) 512 KB

Question 3-4

TRUE or FALSE: The European version of the HP Pavilion 6450 comes standard with 64 Mbytes of RAM and can be expanded to 256 Mbytes

Your Answer:_____

Question 3-5

TRUE or FALSE: In an HP Pavilion 4440, if you need to install a PCI-based card, the modem needs to be moved to the other ISA slot.

Your Answer:_____

Question 3-6

TRUE or FALSE: When adding RAM to an HP Pavilion 8480Z, make sure that the RAM you are adding is 100 MHz SDRAM.

Your Answer:_____

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Appendix A
Answers to Lesson Review Questions

Exercises for Chapter 2

Exercise 2-1

___C___ Hard Drive Activity Indicator
___B___ 3½" 1.44 Mbyte Floppy disk drive
___E___ Power ON/OFF Switch
___D___ Power On Indicator
___A___ CD-ROM Drive or DVD-ROM Drive

Exercise 2-2

___J___ Microphone connector
___L___ Power connector
___F___ Monitor connector
___D___ Serial port connector
___G___ Joystick connector
___H___ Speaker/Line OUT connector
___E___ Parallel port connector
___A___ Mouse connector
___K___ Modem connection
___C___ USB connectors
___B___ Keyboard connector
___I___ Line IN connector

Exercise 2-3

___E___ Hard Drive Activity Indicator
___B___ 3½" 1.44 Mbyte Floppy disk drive
___D___ Power ON/OFF Switch
___C___ Power On Indicator
___A___ CD-ROM Drive or DVD-ROM Drive

Exercise 2-4

___J___ Microphone connector
___A___ Power connector
___F___ Monitor connector
___D___ Serial port connector
___I___ Joystick connector
___H___ Speaker connector
___E___ Parallel port connector
___B___ Mouse and Keyboard connectors
___L___ Modem connection
___C___ USB connectors
___G___ Headphone connector
___K___ Line IN and Line OUT connectors

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Appendix A

Review Question Answers for Chapter 2

Question 2-1

FALSE

Question 2-2

D) None of the above

Question 2-3

C) The F1 key

Question 2-4

D) Section 14 of the Technical Service Handbook

Review Question Answers for Chapter 3

Question 3-1

C) 32 KB

Question 3-2

B) 128 KB

Question 3-3

D) 512 KB

Question 3-4

TRUE

Question 3-5

FALSE

Question 3-6

TRUE

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